Form No. 10-300 (Rev. 10-74)   PH0507121 11.14

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

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SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC
Hennepin Canal Historic District

AND/OR COMMON
Illinois and Mississippi Canal (1889-1970)

2 LOCATION

STREET & NUMBER
W to Moline then N to Rock Falls etc.
__NOT FOR PUBLICATION

CITY, TOWN
Hennepin etc.   __ VICINITY OF

CONGRESSIONAL DISTRICT
18th and 19th

STATE Illinois   CODE   COUNTY Bureau, Henry & Whiteside   CODE

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
X DISTRICT	X PUBLIC	X OCCUPIED	__AGRICULTURE	__MUSEUM
__BUILDING(S)	__PRIVATE	__UNOCCUPIED	__COMMERCIAL	X PARK
__STRUCTURE	__BOTH	__WORK IN PROGRESS	__EDUCATIONAL	__PRIVATE RESIDENCE
__SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	__ENTERTAINMENT	__RELIGIOUS
__OBJECT	__IN PROCESS	__YES: RESTRICTED	__GOVERNMENT	__SCIENTIFIC
	__BEING CONSIDERED	X YES: UNRESTRICTED	__INDUSTRIAL	__TRANSPORTATION
		__NO	__MILITARY	__OTHER:

4 OWNER OF PROPERTY

NAME
Illinois Department of Conservation

STREET & NUMBER
602 State Office Building, 400 S. Spring St.

CITY, TOWN
Springfield   __ VICINITY OF   STATE Illinois 62706

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.
Illinois Dept. of Conservation, Div. of Land Acquisition

STREET & NUMBER
601 State Office Building, 400 S. Spring Street

CITY, TOWN
Springfield,   STATE Illinois 62706

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
Illinois Historic Landmarks Survey

DATE
1973   __FEDERAL   X STATE   __COUNTY   __LOCAL

DEPOSITORY FOR SURVEY RECORDS
Ill. Dept. of Conservation, Hist. Sites Div.

CITY, TOWN
Springfield   STATE Illinois

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
_EXCELLENT	_DETERIORATED	_UNALTERED	X ORIGINAL SITE
X GOOD	_RUINS	X ALTERED	_MOVED DATE_____
_FAIR	_UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Hennepin Canal traverses the divide between the Illinois and Mississippi Rivers. The right-of-way for the Canal's main line is at least 300 feet wide for its entire length. It leaves the Illinois River about two miles upstream from the town of Hennepin, Illinois, at a point known as the Great Bend where the river turns from a westerly course to run almost due south. From its junction with the Illinois, the right-of-way proceeds northwesterly 61.8 miles until it reaches the Rock River near the mouth of the Green River. From there the main line of the canal flows in the Rock River channel for 8.5 miles. At Milan, Illinois (70.3 miles from the Illinois River), the right-of-way begins again and proceeds southwest, meeting the Mississippi River about three miles downstream from Rock Island, Illinois (75.2 miles from the Illinois River). The right-of-way for the canal's feeder line is also at least 300 feet wide for its entire length. Its northern terminus is the Rock River just east of Rock Falls, Illinois, and opposite Sterling, Illinois. From this point the feeder line's right-of-way proceeds almost due south for 29.3 miles. Its southern terminus is at the mainline's right-of-way in its twenty-eighth mile from the Illinois River. The total length of the right-of-way is 96 miles.

The Hennepin Canal Historic District is 89.8 miles of this right-of-way: the 60.5 mile portion of the main line from a point 1.3 miles from the Illinois River to 61.8 miles from the Illinois (the entrance to the Rock River channel) and all 29.3 miles of the feeder line. The Historic District includes approximately 2,329 acres of righ-of-way. Its boundaries, except for diminished length, are those established by the United States Army Corps of Engineers' land acquisition from 1891 to 1906.

The canal prism, both main line and feeder, has side slopes which are two feet horizontal to one foot verticle. It is fifty-two feet wide at its bottom and eighty feet wide at water line. There are turnouts every four or five miles and the canal is wider above and below locks. Thus, it is up to 1,000 feet wide in places. The depth of the water was originally seven feet. The Corps of Engineers reduced pool elevations to five feet in 1951. The Illinois Department of Conservation currently attempts to keep the water at a maximum five feet depth throughout the Historic District. Overall, this 89.8 miles of canal prism is in good condition.

The side slopes of the canal prism are rip-rapped at water level to protect the sides from wave-wash. This rip-rap is natural stone. Much of it is still in place within the area being nominated and is in fair condition. There are three types of prism construction represented in the Historic District. Some portions of the prism have been: 1) completely excavated. Here the canal is carried entirely below the natural surface of the ground. In general, these sections are on the western end of the main line (28.9 to 61.8 miles from the Illinois River) and are in good condition.

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2) partly excavated and partly embanked. They are predominant in the main line's eastern end (1.3 to 17.4 miles from the Illinois River) and are in fair condition. 3) entirely embanked. They include all 29.3 miles of the feeder and 17.4 to 28.9 miles from the Illinois on the main line and are in good condition.

Where the canal is partly excavated and partly embankment, the banks are eight feet wide on the top. Where the canal is entirely embankment, the banks are ten feet wide on the top. Where it is entirely excavated, a tow path sixteen feet wide is excavated at one side, two and a half feet above the water, providing a continuous path so that boats might be towed by animals if necessary or desired (although this was never done). The tow path still runs the entire length of the nominated are. However, between 18.5 miles from the Illinois River and twenty-three miles from the Illinois River on the main line the surface has been changed. Since 1970, the grass on this 4.5 miles of tow path has been replaced by a gravel surface eight feet wide. This section is kept in excellent condition. The tow path has also been modified where bridges have been replaced by earthen embankments through which culverts now carry the water. Here the tow path goes through these embankments via nine-foot corrugated metal plate pipe culverts placed above the water surface. The rest of the tow path, although it retains its historical character, varies in condition from excellent to fair depending on the amount of vehicular use.

The water for the canal is drawn from the Rock River at the northern terminus of the feeder line. A movable dam was constructed across the Rock River between Rock Falls and Sterling, Illinois. In high water periods, its manually operated tainter gates (now replaced) provided flood discharge as high as 40,000 cubic feet per second while maintaining the water at a level needed for the canal. In dry times, the water level is still raised by flashboards placed by hand on the top of the dam. There was also a navigation lock in the dam.

The first known renovation work on this dam was in 1948 when the Corps of Engineers put a new concrete floor in the apron of the dam on the upstream side. They did the same thing to the downstream apron in 1965. Also in the 1960's, the Corps of Engineers replaced the hand-operated tainter gates with new gates and electric hoists and removed the gates and machinery from the navigation lock, replacing the upper gates with a concrete headwall. In the 1970's, the private hydro-electric plant which had owned and operated the six gates closest to the Sterling side of the dam was abandoned; this closing has modified dam operations in that the same volumne of water must be handled with six fewer control gates. The dam, however, appears as it did

in 1907, the year of its construction. It still provides flood control for the Rock River as well as maintaining the water level necessary for the canal. It is operated by the Illinois Department of Transportation, Division of Waterways. The dam is also included in the Historic District.

The dam across the Rock River between Rock Falls and Sterling, Illinois, forms a 2,400 acre pool in the river. This pool, known as Lake Sinnissippi, is the actual reservoir for the canal, but is not included in the Historic District.

The feeder line of the Hennepin Canal runs almost due south from Lake Sinnissippi through level prarie land. It has a fall of only 2.3 feet in its entire 29.3 mile length and, therefore, stands above the surrounding farm land. Except for the first half mile, which is excavated from solid rock, the canal prism of the feeder line is almost entirely embankment. Consequently, although the feeder will carry about 300 feet of water per second, a freshet from the Rock River could damage the feeder and mainline. To prevent such damage, a guard lock and control works were constructed at the junction of the feeder line and Lake Sinnissippi (the head of the feeder).

The Corps of Engineers restored the guard lock to operating condition in the 1960's. Because the guard lock is typical in many respects of all locks on the Hennepin Canal, it will be described in some detail. Others will be described only in so far as they are different from this lock. The guard lock's lock chamber is 170 feet long and thirty-five feet wide. The lock has a solid rock foundation leveled with concrete; its superstructure is made entirely of concrete. The lock walls are 240 feet long. They are four feet wide at the top and the bottom is about forty-five per-cent of the height of the wall. The lower ends of the walls are stepped down and connected with wing walls; the back of the wall has two steps in it. A water level guage is etched into the concrete of the lock wall. Concrete snub posts rest on its top. The lock is manually operated. It is filled by means of two tunnels, one in each lock wall. At the head of each tunnel is a butterfly valve which is operated from the top of the wall by a hand wheel. The lower (downstream) gates are of the ordinary mitre type, placed at an angle of $70^{\circ}30'$ with the center line of the lock and were originally built of yellow pine timbers. The butterfly valves for emptying the locks are located in the bottoms of these lower gates. They are of the same design as the valves for filling the lock but are smaller. The emptying valves are operated from the top of the gates by levers. Except for the valve openings, the bottoms of the gates are solid sixteen inch thick timbers. The upper timbers, where the pressure is less, are fourteen inches thick with six to thirty inch openings left between them, the heel and toe being filled in with short timbers about four feet long. This part of the gate is sheathed with 3x8 matched timbers. The gates shut against a mitre sill which is anchored into the foundation. The lower gates are operated by a special form of hand-powered crabs, or manuvering gears, on the tops of the walls. The upper gates at the guard lock are identical to the lower mitre type gates except that they do not have the butterfly valves for emptying the lock chamber.

There is a sluiceway adjacent to the lcok. The two tainter gates fed over 100 cubic feet of water per second into the canal with the original seven foot depth. They still feed the canal, but with diminished flowage.

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The feeder line of the canal meets the main line in its twenty-eighth mile from the Illinois River. The twenty-eighth mile of the main line is on the summit level of the canal. The summit level extends eleven miles from 17.4 to 28.9 miles from the Illinois River. It, like the feeder line, traverses level prarie and is unbroken by locks. Together the feeder line and the summit level of the main line form forty miles of unbroken canal containing, when completely filled, 100,000,000 cubic feet of water. In both sections the canal is carried, for the most part, above the natural surface of the ground; therefore, a break in any part of this forty miles would allow almost all of the water to escape into the surrounding countryside. Consequently, two emergency gates, which could be closed quickly to minimize the amount of water that would escape, were constructed. One set of these emergency gates -- ordinary mitering gates -- were on the summit level of the main line twenty-three miles from the Illinois River. These wooden gates have been removed but their concrete superstructure remains in fair condition. The other emergency gate is of the Des Fontains type, a single gate extending from one wall of the aqueduct to the other, made to raise and lower on a horizontal axis using principles of buoyancy in its operation. The Des Fontains gate was operated with the current by means of chains on the upstream side of the gate. In its normal open position, the gate rests underwater on the floor of the aqueduct. The Des Fontains gate was placed at the end of Aqueduct 9 crossing the Green River on the feeder line of the canal 23.1 miles from the Rock River.

From the junction of the feeder line and the main line of the canal, the water which has traveled down the feeder flows southwest towards the Mississippi River and southeast towards the Illinois River. From the summit level the main canal descends ninety-three feet in forty-six miles southwest to the Mississippi River and 196 feet in eighteen miles southeast to the Illinois River. Flowing down from the junction of the feeder line and the main line, the water which supplies the successive levels of the canal is carried from the upper end of each lock over a spillway to the lower end. The spillways are cast iron pipes laid behind the lock walls and vary in size from forty-eight inches at the summit level to eighteen inches at the lower end. For a distance of forty feet above and below the locks, the banks on the eastern end of the main line are paved with rubble and with concrete on its western end.

The bottom end of each spillway pipe is also paved with concrete. The bottom of the canal immediately downstream from the lower gates are paved with rip-rap. All of this equipment remains in excellent condition in the Historic District, except for the bank and bottom paving, which varies from

excellent to deteriorated.

There are thirty-two locks on the main line in addition to the dam's navigation lock and the guard lock at the head of the feeder. Their lifts vary from eight to twelve feet. The locks are known by number: Lock 1 is at the junction of the main line and the Illinois River and Lock 32 at the junction of the main line and the Mississippi River. Thirty-one of these locks are still visable. (Lock 1 has been under the Illinois River for over fifty years.) Twenty-eight of these thirty-one visible locks (Locks 2-29) are included in the Historic District. All twenty-eight of the lock chambers are the same size: 170 feet long and thirty-five feet wide.

The foundations are either excavated in solid rock to the proper grade and leveled up with concrete or made of concrete filled grillage resting on piles. Within the Historic District, however, the only rock foundation lock on the main line is Lock 28. The other twenty-seven locks rest on grillage. For those locks six rows of piles were driven the entire length of the foundation and two additional rows were driven under the lock floors. Additional piles were driven for the mitre walls and a clump of six piles were driven under the heel of each of the lock gates. The piles were cut off and capped with 10x10 timbers drift bolted to the piles. Transverse timbers 10x10 or 8x10 were drift bolted to the longitudinal timbers, the spaces being filled with natural cement concrete. The floors of the lock chambers are planked with two inch pine. Just below the mitre wall on the upper gates, there is a line of eight-inch tile laid in gravel underneath and across the foundation to guard against a head of water on the under side of the foundation. This tile connects with strings of tile laid back of the lock walls at the foundation level; these tiles in turn drain into the lock below the lower gates. All these foundations remain in good condition; the floors, however, leak. None was modified or repaired in any lock renovation or modification.

The superstructures of the locks are made entirely of concrete. The lock walls are exactly like those on the guard lock described above except that the backs of some of the lock walls are battered instead of being stepped. All the lock walls in Locks 2-29 are in excellent condition. In the 1960's the Corps of Engineers patched the walls and replaced any deteriorated cement.

The lower gates of all the locks on the Hennepin Canal are mitering gates as described above in relation to the guard lock. Only four lower mitering gates on the main line are in operating condition: Locks 16, 22, 23 and 24. The Corps of Engineers rebuilt and restored their lower gates to operating condition between 1961 and 1965.

Eighteen of the locks on the main line originally had ordinary mitre type upper gates. Fourteen of these locks are included in the Historic District: Locks 2-7 and 22-29. These gates are identical to the upper gates at the guard lock. The Corps of Engineers restored the upper mitre gates of three locks on the main line, Locks 22, 23 and 24, to operating condition between 1961 and 1965. All three had their lower gates rebuilt as well.

The other eleven locks with both upper and lower mitre gates were modified in the same renovation project. At Locks 2,3,5,6,7,25,26,28 and 29, the old gates and machinery were removed from the upper end and replaced by a concrete breastwall to maintain a five-foot depth of water. This is effect turned the locks into spillways with waterfalls at their upstream ends. Because Locks 27 and 4 abutted aqueducts taken out of service, they were not

modified in the same way as were other locks with both upper and lower mitre type gates. Full walls had to be placed at the upper end of the lock chambers to replace the removed gates. Water now enters both locks from the upper pool via syphon.

Fourteen of the locks on the main line (Locks 8-21) originally had Marshall gates at their upper ends. All fourteen of these are included in the Historic District. Marshall gates are unique to the Hennepin Canal. They were designed by Major W.L. Marshall, U.S. Army Corps of Engineers, who was the officer in charge of the canal's construction. The gate is a single gate extending from one wall to the other and is made to raise and lower on a horizontal axis. The middle third of the gate has a leaf extending out from the axis at right angles to the main part of the gate. The leaf operates in a water tight chamber. This chamber is connected to the lower pool through spillway pipe. To open the gate, a valve is opened in the pipe which, due to the difference of elevation of the pools, makes a pressure on the leaf. When the levels on the two sides of the gate become nearly equal, the pressure on the leaf causes the gate to sink below the level of the sill. To shut the gate, the valve is closed and the gate raises and closes from its own buoyancy.

Only one Marshall gate has been restored to operating condition, the upper gate at Lock 16. The Corps of Engineers did this at the same time that it rehabilitated the lock's lower mitre gate in the 1960's. Thus, Lock 16 is the only lock which has both an upper Marshall gate and a lower mitre gate in operating condition. The Corps of Engineers also modified the other thirteen locks with upper Marshall gates in the 1960's. As was the case for locks with both upper and lower mitre gates, in most cases the upper Marshall gate and old machinery were removed and a concrete breastwall put in at the upper end of each lock chamber to maintain a five-foot depth of water: Locks 8-11, 13-15 and 17-21. Only in Lock 12 was the Marshall gate replaced with a full wall. Lock 12, like Locks 4 and 27, abutted an aqueduct which had been taken out of service.

The Hennepin Canal originally crossed waterways at nine places by means of aqueduct bridges varying in length from four to ten thirty-five foot spans. The designs for these aqueducts were almost identical. The piers and abutments stand on concrete filled grillage resting on piles similar to those used for lock foundations, except at Aqueduct 8 where the main line crossed the Green River - its foundation was on shale rock. The piers are seventy-eight feet long, four feet wide on top, six feet wide at the foundation and from nineteen to 25.5 feet high. On the upstream side, the piers are battered and brought to an edge to form ice breakers. The top masonry is two feet

above the original seven foot water level of the canal. Openings forty-four feet four inches wide through the centers of the piers receive the troughs of the aqueducts. The concrete around the opening is reinforced by two horizontal steel rods and two verticle rods on each side.

The troughs have a clear width, inside of walling timbers, of thirty-nine feet six inches, and are made of structural steel with a reinforced concrete lining. There are nineteen twenty inch I-beams spaced two feet three inches, center to center, in each floor; in each side are two I-beams of the same size spaced about six feet, riveted and connected with channels and rods to form trusses. The floors are six inches thick, extending two inches below the top floor beams. They are reinforced with a 2.5 inch bar laid in each space between adjacent floor beams and the same sized bars laid crosswise and spaced six inches throughout the length of each span. The linings of the sides are nine inches thick, reinforced with .25 inch bars spaced six inches apart, extending from the top of the wall into the floor lining, bent so that they lap about two feet by the rods in the floor. Fenders made of two 12x12 timbers, belted together, are anchored to the inside of the piers to protect the lining.

The approaches to the aqueducts are paved with rubble or concrete, splaying from the wall of the abutment to the earthwork slope of the embankment (a distance of about forty feet). The abutments have wing walls at a slight angle to the face fo the masonry. A towpath bridge is carried over the aqueduct to connect with the towpath on the abutment. Small needle dams which could be lowered below the bottom grade of the canal were at each end of the aqueducts and flap valves were set in the masonry to allow the aqueduct to fill to the outside under water level, thus protecting the aqueduct at times of high water.

All nine of the aqueduct sites are in the Historic District. However, the Corps of Engineers took Aqueducts 1, 2 and 8 on the main line out of service in the 1960's. They have been replaced by thrity-six inch round inverted syphons which carry the water under the ground beneath the waterway intersecting the canal. The waterway which intersects the path of the canal now flows freely and the stretch of the canal crossing it is hidden from view. At Aqueducts 1 and 2, new concrete towpath bridges have been constructed along the lines followed by the old aqueduct spans. The other six aqueducts remain in good to excellent condition and are still in operation. In the 1960's the Corps of Engineers relined and patched the aqueducts and removed the needle dams.

Smaller waterways, such as creeks, streams, and drainage facilities, are accomodated along both the main line and the feeder line by culverts. Originally, the culverts were nearly all the inverted syphon type placed from twelve to eighteen inches below the bottom grade of the canal. Twenty-six were concrete arch culverts and thirty-eight were pipe culverts. The arch culverts are of two sizes: ten feet wide and five feet nine inches high, and twelve feet wide and six feet two inches high. The concrete is seventeen inches thick over the crown and the abutment walls are four feet thick. In several places there are double arches. The foundations are similar to those used in the locks. A ten foot culvert has a foundation nearly 150 feet long and twenty feet wide, not including the area under the wings of the head walls. The pipe culverts, either double or single lines, are made of thirty-six inch and forty-eight inch cast iron pipe, leaded together. They rest on

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a foundation of concrete one foot thick and are encased in concrete for half their thickness. The headwalls and slope paving are rubble stone.

Within the Historic District, there are twenty-five arch culverts and all thirty-eight pipe culverts. The Corps of Engineers undertook a culvert rehabilitation project in the 1960's, in which many arch culverts were renovated, repaired or replaced. The pipe culverts required much less work; most of the work was limited to the rebuilding of headwalls and repair of abutments and foundations. All of the culverts are in fair condition now.

To flush fourteen of the canal's culverts, there are fourteen flush ducts to allow water to be admitted into the culvert from the canal. An opening in the side of the canal leads into a well which connects with the culvert. This sluiceway was closed with a steel cylindrical gate hinged to the back of the well. To flush the culvert, the upper end of the culvert is temporarily closed and the sluice gate raised. There are thirteen flush ducts in the Historic District. In the 1960's, the Corps of Engineers modified all of them. Ten now have concrete breastwalls in place of the steel sluice gates; they are in excellent condition but are inoperable. Three have had the sluice gates removed and boards now cover the sluiceway; they are in good condition and are in use.

Numerous roads cross the Hennepin Canal. Highway bridges are numbered from the Illinois River west to the Mississippi, then down the feeder from north to south. However, since bridges, unlike locks, were added from time to time in the past seventy years, the numbering system is less regular than that for locks. The Historic District includes fifty-one bridge sites on the main line and twenty-five on the feeder; a total of seventy-six bridge sites. Only forty-two of these sites reflect the historic character of the Hennepin Canal.

Bridges built during the construction of the canal itself are generally of the fixed span type. They are set at right angles to the axis of the canal regardless of the alignment of the road crossed. As a result, many of the approach alignments are curved, if not skewed. On the main line, bridges have a clearance of seventeen feet over the original water level. The abutments are built of concrete generally resting on a concrete foundation. Many of the approaches are finished with stonework. Under the original plan, the first bridges built across the main line had pony Warren truss type superstructures. The spans are ninety-eight feet long and the plank decks are fourteen feet wide (twelve feet of clear roadway). Three bridges of this type are known to have been constructed. One of these, Bridge 4, remains in the Historic District. It is in fair condition although there are several horizontal cracks on the abutment faces; the structural steel is uniformly rusted and the grillage foundation is leaning slightly away from the canal.

Later, the plan was changed and through Riverbed Pratt truss bridges were built across the main line. These, too, have ninety-eight feet spans and plank decks that are fourteen feet wide. Four bridges are known to have fit these specifications. Three of them, Bridges 7,8 and 9, remain within the Historic District. They are in fair condition. The abutments on 7 and 8 are nearly plumb and the load rating is not controlled on any of the three by the weakness of the abutments. The structural steel is covered with rust and minor pitting. Many of the bridges which had ninety-eight foot through Riverbed Pratt truss superstructures were wider than fourteen feet. Three which were in the Historic District are known to have been eighteen feet wide. One of these, Bridge 18, remains standing. It differs from the norm, however, in that it has a concrete deck. It is in fair to deteriorated condition. The concrete deck needs repair and some rivets should be replaced.

The most common bridge on the main line, was the Pratt truss superstructure with a 110 foot span. There were twenty-five through Riverbed Pratt truss bridges with 110 foot spans across the main line in the Historic District alone. Seventeen of these had plank decks eighteen feet wide; eleven remain standing (Bridges 13,15, 18A,21,24,25,27,30,31,33 and 35). In general, these structures are in fair condition. The concrete abutments are generally in good condition, though often slightly out of alignment. The steel superstructure is generally sound although the lower portal chord angles have in several cases been damaged by errosion and one or two connection rivets are missing on several of the structures. One bridge, 14, is identical to those described above except that it is only seventeen feet wide. It is in similar condition. Five other bridges were identical to those described above but had concrete, rather than plank, decks. Four of these remain in similar condition: Bridges 20,29,34 and 37. Two (Bridges 38 and 39) fit the general specifications except that their concrete decks are only sixteen feet wide; they are in fair condition.

Another bridge style which is repeated over the main line is the through girder lift bridge with a forty foot span. Three of these were originally constructed. Two, Bridges 10A and 40, still have plank decks though of different widths: Bridge 10A is twelve feet wide and Bridge 40 is eighteen feet wide. Bridge 19, the third through girder lift bridge, is also within the historic district. It, however, has a concrete deck sixteen feet wide. All are in good condition and open to traffic but not operable as vertical lift bridges.

The other movable bridge remaining in the Historic District is a retractable deck girder bridge with a fifty-four foot span across the lock chamber at Lock 2. It has a plywood deck. It rests on the walls of Lock 2 and retracts to the north bank. The structure is not safe for vehicular traffic and is restricted to pedestrians. It is in good condition.

The bridges over the feeder clear the water by twelve feet rather than by seventeen feet. Generally, they are also of a different style than on the main line, although five are known to have been originally through Riverbed Pratt truss superstructures. Two of these (Bridges 47 and 49) remain standing in fair condition. They have ninety-eight foot spans and concrete decks sixteen feet wide.

The majority of bridges on the feeder canal are pony Warren truss type superstructures resting on four concrete pedestal pillars. The main span is seventy-five feet long and is supplemented by two I-beams, twenty-one feet long, serving as approach spans. Eight of the bridges over the feeder canal

(Bridges 55, 57, 58, 60, 61, 62, 63 and 64) are of this style with plank decks sixteen feet wide. All remain standing and in use although in most cases the pedestal piers need repair, as do the concrete gravity abutments supporting the approach spans. The condition of the structural steel on the pony Warren trusses is smilar to that found on the through trusses.

Five other bridges on the feeder line were of the same stlye but had concrete decks. Four of these bridges remain: Bridges 51, 52, 53, and 54. Their condition is similar to that of the other pony Warren truss bridges on the feeder line.

In addition to roads, railroads also cross the Hennepin Canal. Within the Historic District, the canal is crossed by four different branches of the Chicago, Burlington and Quincy Railroad; by the main line of the Chicago, Rock Island and Pacific Railroad at three different points; and once by the South Pekin Line of the Chicago and Northwestern Railway. Most of the railroad bridges constructed by the Corps of Engineers in conjunction with canal construction are platt girder bridges. Although the length of the main span varies (Bridge 4 - 63.5 feet; Bridge 5 - eight feet nine inches; Bridge 7 - 97.2 feet; and Bridge 8 - 86.2 feet), the styles are near y identical. Two bridges (Bridges 1 and 2) are of the Platt girder style but have the modification of approach spans. The only real deviation in style that the Corps of Engineers made was in railroad Bridge 3. It is a deck girder bridge with twin decks. The floor of the bridge is formed by reinforced concrete supported upon the stringers of the bridge and the track ballasted over the bridge. (Bridge 5 - a Platt girder bridge - has a similar floor).

The Corps of Engineers did not construct the eighth railroad bridge in the Historic District. The Chicago and Northwestern Railroad built its South Pekin Line after the right-of-way for the canal had been purchased but before construction was complete. As a result, the railroad put up its own bridge, a through Riverbed Truss superstructure with a single track deck.

For purposes of administration, the Hennepin Canal was originally divided into sub-sections, each in the charge of an overseer. These sections varied from four to twelve miles in length. The Corps of Engineers provided a house for each overseer in his section of the canal; a total of fourteen houses were at one time overseer's houses, thirteen built by the Corps of Engineers specifically for the project. (The house not built by the Corps of Engineers is no longer within the Historic District.) Except for those situated at locks, these houses are identified on the main line by the mile from the Illinois River and on the feeder line by the mile from the Rock River. Seven of the overseers' houses were of a common design: two-storied frame houses with eight rooms on a foundation twenty-four feet wide and thirty feet long. Three of these remain standing on their original sites

within the right-of-way: Mile 26 (25.2 miles from the Illinois River on the main line), Mile 18 (17.2 miles from the Illinois River on the main line) and Mile 23 (22.8 miles from the Rock River on the feeder line). A fourth overseer's house of this design stands on Hennepin Canal State Parkway property adjacent to its original site on the right-of-way. The Overseer's house known as Mile 15 (14.4 miles from the Illinois River on the main line) was moved in the 1950's. Two of the houses, Mile 26 and Mile 15, have been lived in continuously since they were constructed; consequently, deterioration has been kept to a minimum. Neither house has undergone major remodeling. Mile 18 and Mile 23 have been vacant since the 1960's, but stabilization measures have been taken. They are more deteriorated than the other two, but they are still structurally sound.

The Corps of Engineers constructed six other overseers' houses but they were not of this common design. Two of these individually designed houses remain on the canal right-of-way: Lock 19 (16.1 miles from the Illinois River on the main line) and the Guard Lock (0 miles from the Rock River on the feeder line). There were several maintenance facilities located at Lock 19 (for example, a warehouse, an office building and an ice house) and it is probable that this house was intended for an overseer with more authority or responsibility than most. Where overseer's houses differ from the common plan, this seems to have been the case. Such a distinction is clearly the case for the residence at the head of the feeder line. This overseer, in addition to his general responsibilities, controlled the operation and regulation of the dam across the Rock River and the amount of flow into the canal. The house was also the residence of the engineer in charge of the whole canal operation in the earliest years of navigation and has been lived in continuously since it was constructed. No major remodeling has been done, although some superficial repairs are needed. The overseer house at Lock 19 has been vacant since the 1960's. Stabilization measures have been taken and it remains structurally sound.

Each overseer had under him lockmen or patrolmen (or both) and, through the summer season, a hired labor force. The Corps of Engineers provided houses for the lockmen and patrolmen; thirty-eight houses in all. As with the overseers' houses, these houses were generally of common design. Thirty lockman/patrolman houses were identical two story frame houses with gambrel roofs, containing seven rooms on a foundation twenty-two feet wide and twenty eight feet long. One of these, the patrolman's house at the guard lock (0.1 miles from the Rock River on the feeder line), remains standing. One lockman/patrolman house was of identical design but built of concrete: Mile 20 (twenty miles from the Rock River on the feeder line). It, too, remains. Both of these patrolman/lockman houses have been vacant since the 1960's. Stabilization measures have been taken, and the structures remain relatively solid. The other seven lockman/patrolman houses, none of which are still standing within the Historic District, were built to individual specifications or, in some, cases, acquired already built and then modified for canal use.

In addition to the houses, the Corps of Engineers constructed barns and equipment sheds adjacent to the residences. Most of these buildings were frame of varying styles. Three support building complexes remain in the Historic District: adjacent to the overseers' houses at the guard lock, Lock 19, and Mile 26. The buildings in these complexes are in generally good condition, although some minor repairs are needed. Several other support buildings remain standing in isolated locations. Their conditions are generally poorer

than those in the complexes, but still can be classified as fair. Some of the maintenance buildings were built of concrete and several of these, too, remain standing in fair to good condition.

The Corps of Engineers also constructed general purpose warehouses and workshops along the right-of-way. At least two warehouses, one on the main line at Lock 19 and one at the head of the feeder, are still in use. Several shops, such as the repair shop at the guard lock and the blacksmith shop at Mile 26, are still standing in good condition, though minus some tools and equipment. Some buildings, such as the ice houses and the post factory, were specifically designed for special functions. The post factory remains, though in deteriorated condition.

The Corps of Engineers also constructed service facilities for the traffic on the canal. The best example is the boat repair facility or boat "ways" on the summit level of the main line (17.7 miles from the Illinois River). Although in a deteriorated condition, the "ways" are part of the Historic District.

All of the Hennepin Canal right-of-way, both main line and feeder line, was bounded by four-strand wire fence strung on concrete fence posts specially constructed by the Corps of Engineers' staff at the Post House. Each post weighs 165 pounds. Many of these fence posts are still in use along the perimeters of the canal property and as internal fencing.

A telephone communications system was constructed along the entire length of the main line and the feeder line so that lockmen could be advised in advance when a boat was coming through for lockage. This system involved the setting of specially made concrete telephone poles along the entire waterway. Each pole constructed at the Post House weighed 750 pounds. Many of them are still standing along the right-of-way in the Historic District of the Hennepin Canal.

The Department of Conservation has designated a portion of the Historic District to be maintained and developed as an interpretive area. That area is on the main line 13.8 to 17.9 miles from the Illinois River. It includes the entire right-of-way and contains 4.1 miles of canal prism and tow path. There are seven locks (Locks 15-21) with upper Marshall gates in the interpretive area as well as one aqueduct (Aqueduct 3), four highway bridges (one original ninety-eight feet through Riverbed Pratt Truss, one original lift bridge, and two replacement bridges), and one railroad bridge (Bridge 3). There are also eight house sites in the area. Of those, three are overseers' houses: two, Lock 19 and Mile 20, are still standing on their original locations; the third, Lock 17, is on Park property near its original site. The

other five sites were originally occupied by patrolman/lockman houses; four of these were of the common pattern and one was built to unique specifications

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW				
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	__LANDSCAPE ARCHITECTURE	__RELIGION
__1400-1499	__ARCHEOLOGY-HISTORIC	__CONSERVATION	__LAW	__SCIENCE
__1500-1599	__AGRICULTURE	X ECONOMICS	__LITERATURE	__SCULPTURE
__1600-1699	__ARCHITECTURE	__EDUCATION	__MILITARY	X SOCIAL/HUMANITARIAN
__1700-1799	__ART	X ENGINEERING	__MUSIC	__THEATER
X 1800-1899	X COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	X TRANSPORTATION
X 1900-	__COMMUNICATIONS	__INDUSTRY	X POLITICS/GOVERNMENT	__OTHER (SPECIFY)
		X INVENTION		

SPECIFIC DATES 1890 - 1951 BUILDER/ARCHITECT U.S. Army Corps of Engineers

STATEMENT OF SIGNIFICANCE

A glance at the Hennepin Canal gives the concept canal meaning. It is not a dry ditch; water still flows in it. Because of its small size, rural setting, and tranquil atmosphere, it requires little imagination to expect a packetboat to appear and enter a still operable lock. The illusion is possible because the Hennepin Canal, unlike so many American historic canals, is virturally intact. Because the canal has such a strong visual impact, its history and technology are not just academic curiosities.

The Hennepin is not only a visually recognizable model of all canals, it is specifically representative of American canals between the mid-nineteenth and mid-twentieth centuries. It is not characteristic of any specific time in that century long span, but includes elements from each phase of canal history within the period. For example, though the canal was built between 1890 and 1907, its size is anachronistic, reflecting national patterns of the 1860's. On the other hand, its engineering and technology reflect the first few decades of the twentieth century. Likewise, it combines the national trends of a century in commerce, transportation, economics.

Although the Hennepin is a composite canal, it is simultaneously a microcosm. The canal's genesis lies in the Great Canal Era of the 1830's, but its planning and construction were influenced by the rise of railroads as competitors to water transportation itself.

Paradoxically, its composite nature, while giving it significance as representative of a larger category, also makes it unique. Some of its technical features had never been employed before. Some were never employed again; others were modified because of this experimental use.

The canal's history demonstrates the existence, unity and nature of America's inland waterway system, so essential to the nation's westward expansion and its commercial and industrial growth. That the canal was always the wrong size--first too large, then too small--for the whole system draws attention to the system itself and to the necessary relationship between individual waterways in both planning and operation.

Its history is also a case study in the economic development of Illinois. Because the canal was a component in more than a century of schemes--land promotion; farming; commerce; industry; transportation--it sheds light on all of them. The canal's history also offers insight into the state's politics. It was a political football for groups from the Long Nine of the 1830's to the Environmentalists of the 1960's.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Steinbach, John Joseph. "History of the Illinois and Mississippi Canal." Unpublished Masters Thesis, Illinois State University, 1964.

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10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 6031.37

UTM REFERENCES

See Continuation Sheet

	ZONE	EASTING	NORTHING
A			
B			
C			
D			

VERBAL BOUNDARY DESCRIPTION

See Continuation Sheet

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
Illinois		Bureau, Henry and Whiteside	
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE: Mary Yeater, Historical Researcher

ORGANIZATION: Illinois Dept. of Conservation

DATE: July 29, 1977

STREET & NUMBER: 507 Gear Street

TELEPHONE: 815-777-2679

CITY OR TOWN: Galena

STATE: Illinois 61036

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL X STATE ____ LOCAL ____

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE Dan Kenney

TITLE Director, Department of Conservation DATE October 19, 1977

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION — KEEPER OF THE NATIONAL REGISTER

DATE 5-22-78

ATTEST: Catherine Cole

KEEPER OF THE NATIONAL REGISTER

DATE 5.4.78

GPO 888-445

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1) Commerce: The Hennepin Canal is important commercially because the direct link it opened between the Great Lakes at Chicago and the Upper Mississippi Valley was 419 miles shorter than existing through water routes.

2) Economics: The Hennepin Canal is also of consequence in economics because without it neither the coal nor grain produced in the area it traverses could have been marketed profitably; mining and farming could not have developed to the extent that they did. Moreover, its construction drained much of the surrounding land, further developing the region's agrarian economy and raising the land values.

3) Engineering: The Hennepin Canal has engineering significance because it was the first American canal to be built of concrete without cut stone facings, setting a pattern for canal construction especially at the Panama Canal.

4) Invention: It is also significant in invention because it utilizes specially designed water control structures: flush ducts and Marshall locks.

5) Politics: Politically, the canal is significant in that it was built by the U.S. Army Corps of Engineers in response to "Granger" and "Alliance" pressure and also reflected the sectional rivalry between Chicago, the northeast, and Great Lakes States and St. Louis and the southwest.

6) Social: The Corps of Engineers employees on the Hennepin Canal and their families formed a distinct and interconnected social unit stretching along both banks of the 104 mile canal. Taken together with the people who worked on the canal boats and barges, this community is typical of canal life on all American canals.

7) Transportation: The existence of such a route gave the railroads direct competition and therby helped regulate their rates, making the canal significant to transportation, as well as commerce.

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HISTORY

The history of the Hennepin Canal falls into four chronological units: promotion and planning (1834-1890), construction (1890-1907), commercial navigation (1907-1951), and recreational use (1951-present). Although these periods provide a convenient organizational structure, they are not totally self-contained and mutually exclusive. Elements from each combine with elements from others to form patterns. These patterns are themselves a major part of the history of the Hennepin Canal.

In September, 1834, Joseph Galer, former construction superintendent on the Erie and Ohio Canal and new Illinois settler, took his blanket and gun and walked from Hennepin, Illinois, on the Illinois River to the Mississippi River near Rock Island, Illinois. He concluded that the marshy depression across the divide between the two rivers was a natural pass for a canal, especially since the depression was bounded by higher land on either side. In October Galer talked about the project with Dr. Augustus G. Langworthy, a land speculator who bought, platted and sold "paper towns." As Galer later recalled, "At first he [Langworthy] made light of the subject, but on my showing him the advantages that would accrue to him if it was carried out, his having property at Indiantown, now Tiskilwa, he began to see that there might be dollars and cents in it, and so he joined me."[1] The two called a meeting of local citizens at the Court House in Hennepin to discuss their proposal's advantages. The participants at this meeting were the nucleus of a group which printed circulars and intensively lobbied the Illinois General Assembly to secure state financing for the construction of what became known as the Hennepin Canal. They had not gained such funding before the Panic of 1837 set in and internal improvement funding cut short.

America's "Great Canal Era" was at its height in 1834. It had begun in the eastern states when the success of the Erie Canal (opened in 1825) graphically demonstrated the economic effects a canal would have on an area: the expansion of shipping, distributing and manufacturing industries, and the consequent growth of cities along the route. During the 1830's and 1840's canal construction began in the western states of Illinois, Ohio, Indiana and Wisconsin. These canals would serve the same economic functions for the settled and established areas of these states that canals were serving in the east. They were also intended to open new areas to settlement. They would promote settlement directly by providing relatively convenient and inexpensive passenger transportation to prospective settlers. Indirectly, they would provide isolated frontier areas with the cheap transportation necessary to market large farm surpluses profitably and to stimulate industries such as coal mining. The original promoters of the Hennepin Canal shared these intentions; therefore, the Hennepin Canal is not only representative of "Great Canal Era"

canals , but more specifically of western canals begun in the 1830's and 1840's even though actual construction was not begun until the 1890's.

"Great Canal Era" canals in both the east and west were not built harum-scarum without regard to the location and capacity of other waterways. Despite the failure of President John Quincy Adams' dream of a federally planned and coordinated national system of roads and canals, state officials and private entrepreneurs were creating a national inland waterway system. Out of sheer economic expediency some canal promoters geared their through-water lines along traditional trade routes. Others opened lines which, while connecting to the established routes, ran in new directions. All, however, were aimed at national, rather than regional, transportation goals. The Hennepin Canal is representative of this trend; the original promoters, Galer and Langworthy, saw it as a link in a much larger chain.

By 1834, a state Canal Commission was completing plans for the Illinois and Michigan Canal (begun 1836, completed 1848. Hereafter cited as I & M Canal) to connect Lake Michigan via the Chicago River to the Illinois River. This was a state project with national significance: it would create a through-water route from the Great Lakes to the Gulf of Mexico by way of the Illinois and Mississippi Rivers. Although a north-south route, it was, because of connections from the Great Lakes to the Atlantic coast, an improved link in national east-west inland transportation routes. Galer and Langworthy argued that the Hennepin Canal would be, in effect, an extension of the I & M Canal, increasing its east-west importance. The two Illinois canals, plus the Great Lakes and the Erie Canal in New York, would function as an all-water version of Interstate 80, opening a direct commercial link with the Upper-Mississippi Valley. The printed circulars and lobbying efforts of the Hennepin group stressed this aspect of the canal and tried to co-opt the already established support for the I & M Canal.

A wave of land speculation swept through Illinois in the 1830's. The state's land gamblers were convinced that Illinois' soil, climate and vast territory could be profitably exploited if inhabitants and enterprise were provided. Most of the adventurers argued that these two needs could be met by a liberal system of state internal improvements. Consequently, in the 1830's land speculators put forward many local improvement schemes. The Hennepin Canal is certainly a case in point.

Augustus Langworth, who owned extensive property along the eventual route of the Hennepin Canal, and others promoted the scheme because it would make their land more marketable. Improved east-west transportation would enable residents of the Illinois and Mississippi Valleys, along with settlers across the divide between the two rivers, to compete in eastern markets where agricultural prices were set, instead of in New Orleans. It would also reduce freight rates on manufactured goods imported from the east.

On a regional level, the drainage potential of the proposed canal was important to land speculators. Much of the land to be traversed by the Hennepin Canal was not marketable because it was marshy. Land gamblers hoped the numerous sloughs and swamps in the area could be sold at a great profit.

In the 1830's Illinois politics was rife with sectional and regional conflict. As was the case with all canals in all states, varying regional interests within Illinois came into conflict over the Hennepin Canal proposal. There were few votes in the Illinois General Assembly from the sparsely populated area along the proposed route; certainly not enough by themselves to force through legislation spending large amounts of the state's already overcommitted funds there. But the local residents and land speculators did have

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natural allies. Businessmen from the more established areas of northern Illinois who were the mainstay of agitation for the I & M Canal hoped to cash in on the production of the newly opened lands in Iowa, Wisconsin and Minnesota. They clearly understood that this proposed Hennepin Canal would reduce the distance from Chicago to the entire Upper Mississippi Valley above Rock Island, Illinois, by 419 miles. The Hennepin Canal proposal did not, however, gain the support of all I & M Canal supporters. It appears that working against the Hennepin plan were the Representatives from the more populous lower Illinois River Valley, the area from Peoria to just north of St. Louis, which had been promised a monopoly on Great Lakes to Mississippi River traffic. The commercial advantage coming to their constituencies because the proposed I & M Canal placed them on a new Lakes to Gulf route would be reduced by the amount of totally inland waterway shipping originating in or destined for the Upper Mississippi Valley.

In the 1830's the Illinois General Assembly was dominated by the "Long Nine" of Sangamon County in central Illinois (seven Representatives -- including Abraham Lincoln -- and two Senators). They wanted to transfer the State Capital from Vandalia in Fayette County in southern Illinois to Springfield in Sangamon County. Consequently, they threw their conspicuous power behind internal improvement legislation in a log-rolling effort. To put Representatives of northern Illinois and the lower Illinois River Valley in their debt, the "Long Nine" pressed particularly hard for legislation related to the proposed I & M Canal. They did not, however, apply equal pressure in favor of the Hennepin Canal. It appears they could not risk the ire of the Representatives of the lower Illinois River, many of whom were linked geographically and emotionally to southern Illinois and thus to Vandalia. The northern businessmen could not use their votes on the capitol issue as Hennepin Canal leverage since those votes were already linked to the I & M Canal venture. As a result, the Hennepin group was unable to secure sufficient legislative backing for the 1836-37 session, the climax of the internal improvement craze.

During the 1840's and 1850's not only had macadam roads and the east-west National Road emerged as competitors to canals, but so had railroads. In the 1850's, railroads supplanted canals as the primary means of transportation in America and railroad fever seized Illinois. Simultaneously, the population of the area traversed by the proposed Hennepin Canal increased, particularly near the western terminus, Rock Island, which had become a booming river port. By the 1860's the population was large enough and the commercial potential of the Upper Mississippi Valley obvious enough that the State had to meet the area's demands for internal improvements. The State's political balance had shifted.

But, reflecting the relative decline of canals nationally and the railroad boom, instead of a canal, the Chicago, Rock Island and Pacific Railroad was put through almost directly over the Hennepin Canal route proposed by Galer and Langworthy in the 1830's.

Although by the 1860's American canals had lost their monopoly on inland transportation, they still played an important role in national life. One such role was in defense. Interest in the Hennepin Canal project revived during the Civil War when relations between the Union and England were so strained that a war between the two was concievable. The British had a strategic advantage in that their St. Lawrence and Welland Canals gave them control of access to the Great Lakes. The most direct canal route joining the Mississippi and the Lakes -- a route that included a Hennepin Canal -- would give U.S. warships a countering advantage. Again, the promoters of the Hennepin Canal stressed that its importance came from the national waterway system of which it could be a part. They did not argue the separate and intrinsic worth of the Hennepin Canal. As the possibility of war became more remote, however, the miliary necessity and thus popular support for construction ebbed.

Canals still had an economic function in commerce and transportation despite the striking display of potential offered by the railroads during the Civil War. By the mid-60's, although the fervor of the 1830's and 1840's demands for canal construction was missing, some groups were still requesting canals. This is reflected in the case of the Hennepin Canal by the continuing agitation for construction even though a railroad now followed the proposed route. Several state legislatures, most notably those of Iowa, Illinois and New York, memorialized Congress for the establishment of a canal by the Federal government. There were also local pro-canal initiatives. For example, in 1864 a citizens' committee from Davenport, Iowa, tried to secure an appropriation from the Iowa legislature for a survey of the proposed route; in 1866 a canal convention met at Geneseo, Illinois, which resolved to raise funds for such a survey. Both of these groups were beaten to the punch. In 1866, citizens of Dixon, Illinois, took up a subscription and hired J.O. Hudnutt, a civil engineer and surveyor to survey a route from Hennepin to Watertown, Illinois, on the Mississippi, with a feeder from the Rock River at Dixon, Illinois. He estimated construction costs at $4,500,000 for a canal sixty feet wide on the water line with a six foot channel and locks 150 by twenty-one feet.

By the late 1860's, some of the earlier enthusiasm returned to canal construction demands across the country. Farming was by now the dominant economic mode in Illinois. It was during this period that the "Granger" movement began to grow in America - and in Illinois. The "Grangers'" basic demand was cheap transportation. The movement was strongest in western farming districts usually served by only one railroad line. These areas were hard hit by skyrocketing freight rates; farmers and business interests were unable to compete with eastern producers in the important market places of the east. "Granger" politicians developed two answers to their problems: government regulation of rail rates or government support for viable competitors. Canals were the only viable competitor at the time. Many canal proposals in the western, southern and mid-western farm belt got fresh consideration as a result of "Granger" pressure. Construction began on several.

By 1870 the "Granger" political leaders had won control of the Illinois General Assembly. After northern Illinois' Ulysses S. Grant was elected pres-

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ident in 1868, the Federal government began to respond to Illinois "Granger" pressures. The first federal survey of the proposed canal was made in 1870 under the authority of Col. J.N. Macomb, U.S. Army Corps of Engineers, and conducted by Graham P. Low, civil engineer and surveyor. Low's plan for the canal followed the same general lines as Hudnutt's but at a cost of $12,500,000 This 1870 plan allowed for a canal 160 feet wide, seven feet deep, with 350 by seventy foot locks -- reflecting current national standards for canal size.

The Hennepin Canal as finally constructed between 1892 and 1907 -- eighty feet wide at water line and fifty-two feet wide at its bottom with a seven foot channel and locks 170 feet long between quoins and thirty-five feet wide -- is only about half as large as the canal Low proposed in 1870. It is, however, slightly larger than that Hudnutt proposed in 1866. Clearly, the Hennepin Canal's dimensions reflect the late 1860's. Furthermore, they are more remeniscent of the "Great Canal Era" than other turn-of-the-century navigation structures. The Hennepin Canal was capable of passing boats with a maximum of 140 feet length and thirty-four feet beam. The I & M Canal, a "Great Canal Era" product, was built to accomodate boats with a maximum of 108 feet length and seventeen feet beam. The Panama Canal, begun in 1904 -- before the Hennepin was open to navigation -- and completed in 1914, has locks 1,000 feet long and 110 feet wide. The early twentieth century Mississippi River navigation facilities and the Illinois River project from Utica to Lockport, finally completed in 1933, were designed and constructed to pass traffic of nearly 600 feet length and 110 feet beam.

Though the Hennepin Canal is clearly more comparable to the I & M than to the Panama Canal or even the Mississippi and Illinois rivers, it is still larger than the I & M Canal. As proposed in 1870, it was even more disproportionate than as actually constructed. Consequently, as early as 1870 the Corps of Engineers tied the success of the Hennepin Canal to an enlargement of the I & M or to the improvement of the Illinois River upstream from LaSalle, Illinois (that is, where it parallels the I & M Canal). Low and his colleagues realized, as had the original promoters of the canal, that the Hennepin Canal had to be viewed in the context of the national waterway system. It was but one link in a chain which connected the Upper Mississippi Valley and the Atlantic seaboard. The Hennepin Canal only connected the Mississippi River to the Illinois River. In national economic terms, that was meaningless without an adequate link to the Illinois and then to Chicago.

In 1872, on President Grant's recommendation, the Senate appointed a committee to study the value of the proposed Hennepin Canal. This committee concluded that a canal would have a great effect as a regulator of railroad freight rates and probably as an appeaser of "Granger" agitation and dissatisfaction in Illinois and the entire Upper Mississippi Valley. However, no

action was taken towards actually constructing the canal.

For the remainder of the 1870's and early 1880's, "Granger" agitation for cheap transportation and competition to the railroads continued. In regard to the Hennepin Canal, several canal conventions memorialized and lobbied in Washington on "Granger" arguments. In 1881, 400 representatives of commercial, municipal and farmers' associations from seven states confered in Davenport, Iowa, and authorized a Hennepin Canal Commission to negotiate with Chicago groups. Members of this commission tried to publicize the existence, nature and significance of the national inland waterway system in order to stress the national importance of their proposed canal unity. The Hennepin Canal Commission also sent agents (Major Allen and Judge J. Murphy) through the east to encourage national support. The agents were most successful in New York State, the home of the new President Chester A. Arthur. Because eastern inland waterways connecting Chicago to the Atlantic traversed the state of New York, commercial advantages would accrue to New Yorkers if a Hennepin Canal were constructed to allow direct, inexpensive transportation from Chicago to the Upper Mississippi Valley. The Hennepin Canal Commission agents also secured passage of a resolution in the Illinois General Assembly calling for Federal construction of the canal.

These efforts bore fruit in 1882 when the issue came before Congress. The House Committee on Railways and Canals gave a favorable report on a bill appropriating $1,000,000 for the Hennepin Canal. The Senate Committee on Commerce reported out a River and Harbor Bill with an amendment appropriating $100,000 for the canal. The House voted against the Senate's Bill despite President Arthur's support. The final compromise bill provided $30,000 to survey the route again and gather information on the project's practical value. This appropriation was so small and lacked provision for any construction because many Representatives and Senators were leery of a national commitment to a project located entirely in one state. Ironically, vigorous Congressional opposition grew out of the national ramifications that the congressmen had not thought existed: sectional rivalry worked against the project. Just as residents of New York could see the prospects of commercial advantage for their region coming from the construction of a canal entirely within the state of Illinois, residents of the lower Mississippi Valley could see prospective commercial disadvantages. Most particularly, St. Louis interests were afraid trade to and from the Upper Mississippi Valley would be diverted to Chicago, with which it was vying to become the Mid-West's dominant city. Consequently, St. Louis residents wanted to avoid not only any actual commercial loss but also any relative loss. Chicago had grown from a population of 12,088 in 1845 to nearly 20,000 in 1848, the year the I & M Canal was opened to navigation, and St. Louis interests were sure their city would be totally overshadowed if a Hennepin Canal were opened. Residents of the lower Mississippi Valley and near Southwest rallied to St. Louis' cause out of a similar rivalry with the northeastern states and especially with the Great Lakes states and New York.

While the Hennepin Canal was being debated in Washington, related action was taking place in Illinois. The Low report and survey of 1870 had linked the success of the Hennepin Canal to an enlargement of the I & M or the improvement of the Illinois River. The Hennepin Canal Commission had popularized this idea. In 1882 the people of the state of Illinois voted to cede the I & M to the Federal government on the condition that the entire canal be enlarged and maintained as a national commercial waterway. The Corps of Engineers' Board assigned to study the proposal concluded that it would be just as economical and even more beneficial to 1) improve the Illinois River from LaSalle to

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Joliet, Illinois; and 2) enlarge only that portion of the I & M from Joliet to Chicago -- that is, across the low divide between the south branch of the Chicago River and the DesPlaines River. In this plan the Chicago River would remain the final link in the chain of waterways from the Upper Mississippi River and the Gulf of Mexico to Lake Michigan.

On the basis of this report, the federal government refused the cession. The Corps of Engineers' analysis virtually eliminated federal funding for necessary repairs and enlargements of the I & M. Consequently, it continued to deteriorate. Although the federal government accepted the Corps of Engineers' negative analysis of the need to enlarge the entire I & M, it ignored the report's positive suggestions. It took no action towards improving the Illinois River or enlarging the canal across the Chicago Divide.

In 1883 the Corps of Engineers made a report on the Hennepin Canal as provided by the compromise of 1882. The 1882-1883 survey was made under the authority of Major H.H. Benyuard of the Chicago District of the Corps of Engineers and conducted by H.B. Herr. The report recommended that one of three routes be selected for the Hennepin Canal: the Marais d'Osier (Willow Marsh), the Watertown, or the Rock Island. The line of the Eastern half of the route was the same on all three surveys: the canal would begin at the great bend of the Illinois River and run along the Bureau Creek Valley to a summit level, eighteen miles west. The three routes differed only on the remaining western portion. The northern most route, the Marais d'Osier, had decided advantages: it was in a low lying area connecting the Rock and the Mississippi Rivers upstream from Rock Island. During the high water season, the Marais d'Osier floods to a depth permitting steamboat travel between the two rivers, bypassing Rock Island. Both the Rock Island and Watertown routes entailed excavation in rock and through a soil much more difficult to work. Furthermore, either of these two lines would have doubled the number of bridges and culverts necessary. The report made no definite recommendation on routing.

The most significant portion of the 1883 report summarized the national economic advantages to be gained from the construction of the Hennepin Canal. The report was based on the assumptions that the development of the Upper Mississippi Valley would be a national economic advantage and that the inland waterway system was a unified and viable mode of transport and commerce. The Board of Engineers concluded that cheap transportation to the east was more important to the development of the Upper Mississippi Valley than was cheap transportation to the south, a great deal having already been done to provide such transportation to the south: the Illinois and Mississippi River improvment projects, for instance. The report also pointed out that the main lines of commerce flow from east to west and west to east. For both imports (manufactured articles) and exports (agricultural products), the farm belt of Iowa, Wisconsin, Minnesota and Illinois needed to be directly connected to the great

shipping, manufacturing, and population centers of the east.

The 1883 report also argued that the construction of a Hennepin Canal to compete with the railroads would reduce generally the cost of transportation in the Upper Mississippi Valley. The report documented the great volume of the annual cereal product of states directly tributary to the Upper Mississippi, concluding that the railroad alone could not handle this huge load. Therefore, the waterway would be a complement as well as a competitor for the railroads; it would be important in the transportation of heavy and bulky freight, while the railroads would cater to light freight and perishable goods. The report contended that the extension of the water-route transportation system of the Erie Canal and Great Lakes would so greatly enhance the prosperity of the northwest, so develop the country immediately tributary to the extended waterway, and so much increase light freight traffic and passenger travel that the railroads would prosper as a result of the canal's construction.

In 1886, after new supporters such as the Knights of Labor joined the ranks of Hennepin Canal advocates, Congress finally acted. Although the sections of the River and Harbor Bill of 1886 dealing with improvements of the Lower Mississippi River and construction of the Hennepin Canal were deleted, Congress again appointed a Board of Engineers to examine proposed routes and reinvestigate the effect the canal would have on national commerce. The Board reported that benefits would exceed costs and suggested the Marais d'Osier route to be used. The Secretary of War and the Chief of Engineers accepted the Board's report on commerce, although they over-rode its routing suggestions. For commercial reasons and because of "greater military significance" [2] (perhaps related to the arsenal located at Rock Island), they decided on the Rock Island route.

Agitation for the construction of the Hennepin Canal continued from 1886 until 1890. The fervor of this agitation reflected the rise of the national "Alliance" movement. An agricultural depression was triggering a new wave of farm radicalism. Regional "Alliances," organizations of farmers' clubs, expanded greatly after 1885. The premises of the "Alliances" were that agricultural prices were too low, that transportation costs were too high, and that something was radically wrong with America's financial system. Their basic demand was for political action of some kind to improve the lot of the farmers. Congressional action on the Hennepin Canal to provide cheap transportation for Upper Mississippi farming areas fit neatly with "Alliance" aims. But in the 1880's, the various regional "Alliances" were unable to unite in a national political party. Consequently, although Congress considered the Hennepin Canal proposal repeatedly, it made no construction appropriations. Continually overridden was the argument that the canal would have actual, or even symbolic, national significance as Congressional action on behalf of the farmers. The main objection proffered was that without improvement on the Illinois River and enlargement of the Illinois and Michigan Canal across the Chicago Divide, the Hennepin Canal would be only of local importance.

To counter this objection by stressing national significance, in 1889 the name of the canal was changed from the Hennepin Canal to the Illinois and Mississippi Canal.

By 1890 the various regional "Alliances" and local affiliated farmers groups were actively involved in local politics. They campaigned with tremendous vigor and had great success in the Upper Mississippi Valley. Their national clout was becoming apparent. That same year, the Corps of Engineers

submitted to Congress detailed plans and estimates based on previous surveys. Captain (later Major and eventually Brigadier General) W. L. Marshall, who prepared the report, estimated a cost of $6,925,960.

The Corps of Engineers' report also stressed the dominant position which Chicago held in the northwest and contended that Chicago rather than St.Louis was the region's inevitable center for commerce. Without the Hennepin Canal, the Upper Mississippi Valley would be cut off from its natural economic and commercial focus.

All the statistics and arguments presented in this 1883 report, however, were geared to the canal size entailed in the 1870 survey. The Board of Engineers did not recommend revising the Hennepin Canal plans to accomodate the increasing size of boats and barges. Opposition to the proposed canal was apparently too great. Even at the 1870 scale, as Low had pointed out and Benyuard and Herr reaffirmed, the success of the Hennepin Canal depended on the enlargement of a portion of the I & M and the improvement of the Illinois River from LaSalle to Joliet -- expensive actions. Moreover, enlargement to 1883 standards would have necessitated even more expensive improvements on both the Illinois River and the I & M. In addition, a canal of 1870 size would require diversion of vast amounts of water from the Rock River. Water-power interests on the Rock River objected, saying the canal would injure manufacturing interests at various points along the River. Such complaints would mount if the Hennepin was brought to 1883 standards. Naturally, continuing their protest were the areas from which river traffic (either on the Illinois or Mississippi) would be diverted by the canal's construction. They argued that traditional north-south commercial patterns were crucial, not the east-west lines as argued by the Corps.

Even with an endorsement of the National Board of Trade, in 1884, the appropriation for the Hennepin Canal was deleted from the River and Harbor Bill. The project was stalled in 1885 despite much agitation by canal supporters, including a resolution in the New York legislature. Sectional strife was still largely responsible for the lack of action in Congress. The report of 1890 reiterated the economic significance which the proposed canal would afford if it were part of an adequate national inland waterway system. It also stressed that the federal government, rather than any private organization, ought to construct and operate the waterway.

This report bore fruit. By the River and Harbor Act of September 19, 1890, Congress authorized construction of the Hennepin Canal. The canal as authorized, however, was even smaller than that proposed in 1870 and 1883. It had the same channel dimensions as the proposed canals but the dimensions of the locks were only half the size proposed: 170 feet by thirty feet as opposed to

350 by seventy. This, of course, appeased canal opponents concerned with water-power on the Rock River. The size reduction also mollified residents of areas from which river traffic would be diverted: a reduction in capacity meant a reduction in competition offered them by the canal. It also mitigated the opposition of those worried about the great expense involved in improvements to the Illinois River and enlargement of the I & M Canal across the Chicago Divide. The Corps of Engineers insisted that the size of an inland waterway system be determined by its largest part. The Hennepin Canal, under any plan by then presented, was the largest link in the chain from the Mississippi River to the Great Lakes. The argument presented was that the smaller the Hennepin was kept, the less enlargement or improvement needed on the other two links and, thus, the less expense involved. The Illinois River and the I & M would, however, still need work. This work, unfortunately, was not broached in River and Harbor Act of 1890.

Congress ignored the portions of the previous Corps reports which stressed that without the enlargement of the I & M and improvement of the Illinois River, the Corps' conclusions on the economic value of the Hennepin Canal would be in valid. It also ignored all engineering reports concluding that unless it was of sufficient capacity, the canal could not do for commerce and the national economy what was intended. Similar arguments presented by supporters of cheap transportation such as the "Alliances" were also ignored. In 1890, Republicans and Democrats were still reluctant to make concessions to "Alliance" demands. They either ignored their agitation or tossed them token sops which could in no way actually meet the needs described -- clearly the case in the under-sized Hennepin Canal.

The River and Harbor Act of 1890 authorized the U.S. Army Corps of Engineers under the authority of the Secretary of War to design and construct the Hennepin Canal. It also appropriated $500,000 for location of the canal, purchase of right-of-way, and construction of four to five miles of canal just above the mouth of the Rock River near Milan. This section was given priority not only because it traversed the most populated region of the proposed route, but also because in providing a by-pass of the lower rapids of the Rock River it opened navigation to those central Illinois coal fields closest to the Mississippi River.

Major W.L. Marshall, the officer in charge of the 1890 report on which the authorizing legislation had been based and the commander of the Second Chicago District of the U.S. Army Corps of Engineers, was given authority over the Hennepin Canal construction project. Major Marshall remained in charge until December 31, 1899, when Major J.H. Willard assumed command. Major Willard was in charge until July 31, 1903, when he was relieved by Major C.S. Riche. Major Riche remained until April 20, 1905, when he turned the work over to Major W.H. Bixby, who retained command until April 30,1906, when he turned the work back to Major Riche who was in charge through the opening of the canal in 1907. All of these officers were assisted by Assistant Engineer James C. Long and Assistant Engineer L.L. Wheeler who had been connected with the Hennepin Canal since the late 1880's.

These officers and engineers, most notably Major Marshall and Assistant Engineer Wheeler, paired the anachronistic scale of the Hennepin Canal with much of the most up-to-date technology available in the 1890's. Some features of the Hennepin Canal are in fact significant innovations in canal engineering. The most important is the substitution of artificial stone made of Portland cement -- concrete -- for traditional cut stone facings in the canal's locks

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and dams. Some European nations had experimented with concrete, but the Hennepin Canal marks the beginning in America of the use of concrete without stone facings in canal construction.

During the detailed planning stage for the first section of the canal, Major Marshall asked the Secretary of War, Charles Foster, for permission to use concrete without stone facings. Marshall argued that concrete would be stronger and more durable than traditional cut stone masonry and was less than half the price. Furthermore, recognizing though not successfully remedying what was to be the canal's fatal flaw, Marshall suggested that the savings resulting from the use of concrete be used to increase the width of the locks by five feet. On May 11, 1891, the Secretary of War granted permission to use concrete in construction of dams and locks and accepted the suggestion on expanded lock width. Thus, not only was most significant engineering innovation on the Hennepin Canal secure, but its actual dimensions decided upon (locks 170 feet long and thirty-five feet wide).

Because of the uniqueness of their situation as officials in charge of the first American canal constructed entirely with concrete, Marshall and Wheeler, who had direct responsibility for the first section of actural construction work, had to develop methods for working with the material. They used a combination of established techniques and new procedures especially developed for the project. The concrete for the arch culverts was mixed in the traditional way by hand, but that for the lock walls was mixed by specially designed machines which were prototypes for those now in use. In another innovation, three shifts were established with laborers working eight hours each, so that work on these walls was continuous from the time the walls were started until they were completed. With sixty-eight men assigned to each shift, the superstructure of each lock was completed in about one week's time. Exhaustive tests conducted during the construction determined that American brands of Portland cement were at least equal to German and Swedish cements: therefore, American cement could be used in nearly all the construction, further reducing costs. Since the specifications for Portland cement developed by the Corps of Engineers in this work became a standard, American cement manufacturer's sales increased both immediately and over the long-range.

These engineering innovations, both in material used and methods of dealing with it, had an immediate impact on American engineering. By 1900, officials concerned with cement concluded that "as object lessons in its (concrete's) successful use the locks on the Hennepin Canal stand as monuments in our own country." [3] The engineering innovations also had a long range impact: they "revolutionized the construction industry and set a pattern for canal construction, especially at the Panama Canal." [4]

Many other aspects of the Hennepin Canal construction also involved a combination of established techniques and specially developed procedures. For instance, in the excavation process some of the machinery developed became proto types for that now in use (e.g., the Orange Peeler Dredge was a well-adapted and economical turntable dredge constructed on special contract for the Hennepin Canal. Its name is derived from its "orange peel" bucket: the lower part of the bucket was hemispherically shaped and divided into four parts as an orange is cut when peeled. This bucket is a forerunner of the modern drag bucket -- it operated automatically like a modern drag bucket except that the bucket had four sections rather than two.). Other machines developed for special circumstances encountered on the canal were not used again and serve as examples of ingenuity and the sophistocation of late nineteenth and early twentieth century technology (e.g., the portion of the main line between mile 20 and mile 23 was declared stable on the basis of shallow borings. But when work began, it was found to be a peat bog. In 1899 the Corps of Engineers took the work over from the original contractor, The Globe Construction Company of Cincinnati, Ohio, and Assistant Engineer Long used hired labor to excavate by the innovative means of an overhead steam driven cableway with wooden towers about 500 feet apart.) Still others, such as the three-foot guage railroad, were rather standard. The vast majority of these machines, as well as general construction techniques, are documented in an historic photograph collection. The photo record made at the order of the Corps of Engineers illustrates the entire construction process from July 1892, when the first earthwork was started, until November 1907, when the first boat traveled the canal. The Department of Conservation already has copies of a significant number of the photographs and access to the rest.

The engineering significance of the Hennepin Canal is further enhanced in that many structures on the canal involve adaptation of generally accepted engineering models: for example, aqueducts, culverts, spillways, sluiceways, emergency gates and bridges and the dam at Rock Falls - Sterling, Illinois. (For descriptions see above Item 7). A few structures, such as the flush ducts (also described above, Item 7), were developed and designed especially for the canal.

New also were the upper gates on fourteen of the canal's locks. Although the other twenty upper gates and all thirty-four lower gates are ordinary mitre gates in the engineering pattern dominant for at least the previous seventy years in America, these fourteen gates are innovative. They are automatic gates designed by Major Marshall. (For a description see above, Item 7). According to Assistant Engineer Wheeler, who supervised the operation of the entire canal in its earliest years of operation, "These gates have given considerable trouble in operation, entirely due to faulty detailing and construction and not to the principle of the gate itself." [5] However, despite the validity of the design principle, no Marshall gates were ever constructed on another canal project.

When the Hennepin Canal project was begun in 1890, the estimated cost was $6,925,900; by June 30, 1908 (the end of the fiscal year in which construction was completed) the total cost of the canal and related structures was $7,319,563.39. Despite the substantial savings that resulted from the use of concrete, the canal cost nearly $400,000 more than anticipated.

Much of this additional expense was probably the result, directly or indirectly, of decisions made early in the building process: a questionalble canal locating policy and an inefficient system for purchasing the right-of-way. Marshall, Wheeler, and Land had laid out the general route of the main-

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line by the Winter of 1890-91. But then the adjacent cities of Sterling and Rock Falls put in a joint claim for the terminus of the feeder line, even though Dixon, another city on the Rock River, had been chosen as its head by earlier government surveys. Rather than settle the issue then, the engineers postponed locating the feeder line, ignoring the fact that its location would have significant effects on the main line. The eventual adoption of the Sterling-Rock Falls line meant that three locks had to be taken out of the main line's plans and its summit level lowered by nine feet. All of these changes had to be made in 1899 -- after the "final" location of the main line was complete; after some of the main line right-of-way had been acquired; and after part of the canal itself had been built and was in use.

The decision to delay the location of (and thus the construction of) the feeder line also meant that completed portions of the mainline had to stand empty. Without a completed feeder line, there was no way to get water into the canal between the mouth of the Green River where it leaves the Rock River and its junction with the Illinois. The finished but unwatered canal prism and banks had to be maintained for up to thirteen years. This was particularly hard on the earthwork because in most areas it was completed before other structures. Crews had to deal with general deterioration as well as with burrowing animals and freshlets in adjacent streams which caused washouts. In fact, the banks had to completely re-vetted in 1906. But the engineers justified the increased expense on the grounds that maintenance costs were balanced out by the cheaper rates paid for major excavation work in earlier years.

The delay in locating the feeder line also led to added expense and litigation in relation to the dam across the Rock River at Sterling-Rock Falls. Court actions between 1892 (after the Corps was committed to delay) and 1900 forced major, expensive modification of the dam's design. Then further negotiations and litigation with the Sterling Hydraulic Company over water power held up work until 1907.

The postponement of the feeder line also delayed construction so long that highway standards changed. Consequently, another long litigation concerning bridges across the feeder stopped construction and added even more to the cost.

A second questionable administrative decision, probably as significant as the location of the feeder, related to right-of-way acquisition. Congress had appropriated funds for the right-of-way acquisition and the Illinois General Assembly ceded to the Federal government jurisdiction over lands acquired through eminent domain. But the Corps of Engineers did not move immediately to secure the right-of-way for the entire route in one complete, continuous operation. From 1891 until 1906, they obtained it only as needed for construction.

For purposes of construction, the Corps divided the canal into five sections: the feeder, the eastern, western, Rock River, and Milan sections. They

obtained the right-of-way for the Milan section between 1891-92; the eastern and western sections between 1893-98; the feeder section between 1896-1901; and the land to be inundated by the dam on the Rock River at Sterling-Rock Falls between 1905-06. This cumbersome policy raised construction costs: land values were rising rapidly throughout the region and land valued at $10-100 per acre in 1890 was eventually purchased for twice as much. The piecemeal acquisition also delayed construction because the government was faced with many lawsuits which asked for more money than the landowners were being offered in bids based on 1890 valuations.

Other incidents and circumstances also contributed to the excess costs. For example, in July 1892 construction began on the Milan section, for which the River and harbor Act of 1890 had appropriated funds. Assistant Engineer Wheeler was in charge of the construction of the Milan section, five miles of canal just above the mouth of the Rock River. By June 3, 1892 (the end of the fiscal year), he had awarded contracts for three miles of canal prism, for the foundations of three locks, and for supplying sand and pebbles for use in the concrete masonry -- contracts based on estimates figured on a ten-hour work day. The eight-hour work day had been a cause celebre for nearly ten years and during the summer of 1892, Congress was in the process of taking action on the question. Unfortunately, although work had begun in July, the Hennepin contracts did not reach the Chief of Engineers in Washington, D.C. until after August 1 when Congress passed an act providing that laborers should not be permitted or required to work more than eight hours a day for the government or government contractors. Work on the Hennepin stopped and the Chief of Engineers directed that the work be readvertized. As a result of the new eight-hour day law, the cost of labor on the entire canal rose 25% over that estimated.

The Milan section of the canal was basically completed in November 1894. Water was turned into the canal on November 29, but it was not formally opened to navigation until April 17,1895. This section of the canal joins the natural harbor of the Rock River pool on the west. Work on the Rock River section was financed from an 1892 appropriation and completed in conjunction with the work on the Milan section. Supervised by the Rock Island Office of the Corps of Engineers, there were few problems in the improvement of the natural harbor.

In the Rock River section, the canal flows in the Rock River itself; therefore, letting water in was not considered a separate construction step. The Milan section was the only other section to have water let into it before 1907 The rest of construction sat empty until the entire canal was finished.

By the fall of 1895, coal from central Illinois was being shipped down the canal's Milan and Rock River sections. Since Rock Island, the western terminus, was a primary coaling station on the Mississippi River, shipment of coal to Rock Island alone kept the open portion of the canal busy until 1907.

Work on the eastern section under Assistant Engineer Long began in 1894. This section included that stretch of the mainline from the Great Bend of the Illinois River to Mile 24 north of Sheffield on the summit level. From an engineering standpoint, it was the most challenging section of the canal. In its first eighteen miles it ascends 196 feet from the Illinois River and requires twenty-one locks. It is also very close to Bureau Creek, making necessary a high embankment and three aqueducts. A set of emergency gates also had to be constructed.

In addition to these expected construction challenges, contractors discovered after work had begun that at least three miles of the line went through

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a peat bog. Moreover, the builders of the eastern section had to deal with very limited appropriations. Only with the River and Harbor Act of June 3, 1896, was the Hennepin Canal placed on a continuing-contract system which meant a regular annual allocation from 1897-1902. The eastern section was basically completed in 1899, five years after it was begun.

Meanwhile, in 1897 under the new funding status, work started on the western section of the canal. This section under Assistant Engineer Wheeler's charge included that part of the main line from Mile 24 to the Rock River southwest of Colona at Mile 62. There were few problems in connection with its construction.

Excavation work on the feeder finally began in 1899 under Wheeler's supervision. Aside from problems arising from litigation and other consequences resulting from the initial decision to delay this work, it progressed smoothly. In 1906, work began on the dam at Sterling-Rock Falls, Only after this final structure was completed could water be let into the feeder and thus the eastern and western sections of the mainline.

Construction officially ended on October 21, 1907. Water from the Rock River at Sterling-Rock Falls was turned into the feeder line on October 24. The canal prism, some of which had been completed but unwatered for thirteen years, settled and filled only slowly. The steamer U.S. Marion, under the command of Captain Rambo and loaded with government officials, was the first boat to travel the full seventy-five miles of the mainline (eastern, western, Milan and Rock River sections). The Marion left the Illinois River at Bureau, Illinois, on November 8, 1907, and arrived at the Mississippi River near Rock Island, Illinois, on November 15.

During the fifteen years of construction, the excavated but unused portions of the canal had served as a drainage ditch for previously swampy and therefore unfarmable land along its route. When the water was first turned into the canal, underdraining ceased and the land reverted to swamp. Farmers who had brough this newly arable land under cultivation complained, blaming the wet conditions on seepage. Despite the lack of validity of the farmers' contention, the Corps built drainage ditches at the cost of about half a million dollars. Actual seepage was remedied with the spring rains of 1908 which led to a deposit of sediment on the bed and banks. The earthwork stood the test of actual water pressure well considering the number of years involved in construction.

Once the entire waterway was completed and opened to navigation, the labor force had to be reduced from the high level required by construction. After 1907, the Corps employed at least fifty men, and often more, full-time, year-round to operate and maintain the Hennepin Canal as a commercial waterway. The labor force, although comprised entirely of civilians, was under the direct

supervision of the Rock Island District Office of the U.S. Army Corps of Engineers.

For purposes of administration, the Corps divided the canal into subsections, each in the charge of an overseer. These sections varied in length from four to twelve miles in length. Each overseer had under him lockmen or patrolmen or both. This organizational structure is typical of that used on all canals operated for commercial navigation regardless of the period of time.

All the overseers, lockmen and patrolmen were full-time, year-round employees and the Corps required them to live in Corps-owned houses adjacent to the canal, decucting the rent from their salaries. With the exception of the lockman at Lock 1 who lived in a houseboat, they were encouraged to keep stock. Nearly every family had three cows and their offspring (the technical limit--although many employees exceeded it, keeping dairy and/or beef herds of twenty-five to thirty). The cattle could graze free on the canal right-of-way. Many employees also raised pigs and chickens. In the early years, a select few had teams of horses which they rented to the Corps for mowing grass, and so on. The horses, too, grazed free of charge. Each residence also had a large garden plot and some had orchards as well. Besides these income supplements, the Corps granted lockmen and patrolmen exclusive trapping rights to an area of canal adjacent to their homes. (The primary catch was mink and muskrat.)

The regulations governing and privileges granted to Hennepin Canal employees by the Corps welded them into a loose "community." They were linked together not only by occupation but also by the virtually identical lifestyles dictated or offered by their employer. Both of these links differentiated them to a degree from their neighbors who were generally townspeople or farmers. The canal men and their families formed a distinct and inter-connected "social unit" streching along both banks of the 104 mile canal. Taken together with the people who worked on the canal boats and barges, this "community" is typical of canal life on all American canals. The Hennepin Canal is in this case not a typical or unique, but a microcosm of the whole.

The canal was open to navigation whenever weather permitted; that is, unless closed by ice. So in addition to responsibility for canal structures and supervision of the lockmen and patrolmen, the overseers were in charge of hired hourly labor through the summer season. The part-time and full-time help raised the entire labor force to well over one hundred men each summer season.

The overseers were also responsible for the equipment used in maintainance and operation. Besides the standard items and machinery, each overseer was provided with a motor launch and some had the responsibility for various Corps tow-boats, barges and dredges. In later years a fleet of trucks also came under the overseers' charge.

Maintainance work during the years of operation (1907-1951) included patrolling the banks, operating the locks, strengthening banks, reapiring breaks, repairing and maintaining structures, revetting, repairing boats and barges, servicing the telephone system, remedying seepage conditions, maintaining a constant channel depth, and keeping drainage pipes, culverts and intersecting waterways flowing freely. Miscellaneous maintainance and improvement, such as trimming and burning weeds, grass, trees and brush along the right-of-way or gravelling the towpath and bridge approaches, were also necessary.

The total cost for operation and care from 1908 through 1951 was $6,900,653 or an average of $160,480 per year. Costs were particularly high in the first six years not only because there were major breaks in the banks of the canal

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for three successive years, but also because the drainage ditches built to pacify the farmers (see above) were charged to maintainance rather than construction. For the next thirty years of operation, costs were exceptionally high only after four major breaks in the canal banks: 1928,1932,1938 and 1940. The 1943 break in the canal, which took out not only a lock but an aqueduct, marks the beginning of the final nine year sequence of extremely high operational costs.

Unfortunately, these operational expenses were not offset by national economic advantages as the promoters of the Hennepin Canal had alledged they would be. In 1907, when the Corps of Engineers opened the canal to navigation, the only navigable link between its eastern terminus and Lake Michigan was still inadequate. Ever since 1882 the Corps had insisted on two necessary conditions for a successful Hennepin Canal: 1) improvement of the Illinois River from LaSalle to Joliet; and 2) enlargement of only that portion of the I & M Canal from Joliet to Chicago. By 1907, nothing had been done to make the Illinois navigable from LaSalle to Joliet. Traffic still had to pass through the I & M between these two points.

The I & M Canal was built to accomodate boats with a maximum of 108 feet length and seventeen feet beam drawing a maximum of 4.5 feet of water. The Hennepin, though its size had been kept anachronistic, was larger, capable of passing boats with a maximum of 140 feet length and thirty-four feet beam and 640 gross tons. Its extreme capacity was probably three boats each way per hour; 144 boats a day of 640 registered tons each; 18,432,000 tons in two hundred days, the shortest possible navigational season.

Plainly, the two canals did not fit. Shippers soon realized that rather than transfer cargoes from smaller boats to larger and vice versa, it was cheaper to use the extreme capacity of the I & M as the maximum on both canals. The full size of the Hennepin could not be taken advantage of in conjunction with the I & M.

Moreover, after 1878 the I & M had failed to pay even the expenses of its operation and maintenance. By 1907, the thirty years of continual deficit operation had taken its toll; the canal was so deteriorated that it was hardly navigable.

On the other hand, the improved Joliet to Chicago connection which the Corps had pinpointed as the second necessary condition for a successful Hennepin Canal had been created. By the 1860's, Chicago's water supply was contaminated by sewage running down the Chicago River into Lake Michigan, causing typhoid. To deal with the health problem, in 1892 the State of Illinois' Chicago Sanitary District began construction on the Chicago Sanitary and Ship Canal. This capacious canal with a twenty-six foot channel extends from the Chicago River across the divide to the DesPlaines River at Lockport, Illinois.

The channel was also deepened in the Chicago River, whose flow was changed in connection with the canal's construction.

This bigger and more modern canal, although not built specifically for that purpose, then replaced the small and deteriorated I & M as the commercial waterway from Lockport to Chicago. Most of the portion of the I & M Canal that the Corps had wanted to enlarge was instead abandoned in 1900. In 1901, a further section of the Chicago Sanitary and Ship Canal opened from Lockport to Joliet, causing that part of the I & M to be abandoned as well. (This reach of the Chicago Sanitary and Ship Canal was itself subsequently replaced when the Illinois River project was completed in 1933.)

Thus, as of 1901 there was an adequate connection between Lake Michigan and the Illinois River at Joliet. One of the necessary conditions for a successful Hennepin Canal had been met. But necessary as this was, it was not sufficient for the success of the Hennepin Canal. Once again, the importance and unity of a total waterway system becomes apparent. The Hennepin Canal can not be viewed in isolation.

Although the Corps opened the Hennepin to navigation in October-November 1907, commercial traffic was not really possible until the 1908 season because of winter weather. Despite the fact that the canal still ended virtually in mid-air by 1908, no one forsaw what a total waste the canal would be without the LaSalle to Joliet connection because it was assumed that coal shipments could keep the entire canal busy. After all, the stretch of canal opened in 1895 had been kept busy by coal shipments to Rock Island. Unfortunately, within a matter of months of the 1907 opening of the entire canal, the coal fields of central Illinois closed.

Because the coal shipments ended, the first major use of the canal was merely to pass launches, houseboats and pleasure boats. These boats, however, were only moving from one permanent base to another; they did not represent the beginning of significant tourism.

Supplies and construction equipment being used to put the finishing touches on the construction project itself were also shipped on the canal. In 1908, the only commodities hauled on the canal were those used in canal construction and operation: wood; cement; tile; sand and gravel; lumber and posts; coal for heating the overseer and lockmen/patrolmen houses. They made up over half of all the tonnage carried during the first five years of operation.

The most profitable commercial activities associated with the Hennepin Canal in its earliest years of operation did not come from the traffic at all. In 1895 the Corps began to sell ice permits, charging one dollar per thousand square feet of ice cut. They built ice houses along the canal to store the ice for staff use and rented others to commercial ice firms. Ice was even stored in the peat beds along the canal right-of-way on the summit level. In addition the Corps rented out as pasture those stretches of right-of-way not already allocated to employees for their own use.

Although several freight services were proposed in the earliest years of canal operations, no regular freight service was established. The canal needed private freight services to solicit and promote its commercial use. In the twentieth century, traffic was simply not going to flock to the canal when railroads were conveniently located and offered good terminal facilities. Although the canal was close to several towns, unlike the railroads it did not pass directly through any. Furthermore, the Corps of Engineers did not modify their construction plans in light of the fact that they knew the canal, at least in its first years of operation, would not have an adequate eastern out-

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let. The Corps unrealistically saw the Hennepin Canal as having nothing to do with its immediate region. They thought most traffic would originate outside of the vicinity of the canal and be destined for a location far from it. This idea would have been perfectly sound if the Hennepin Canal had been part of a system with equal sized parts. It was not. Nevertheless, in keeping with their initial understanding of its purpose, the Corps did not build facilities for loading and unloading commodities on the canal. Any terminal facilities had to be built and maintained by private entrepreneurs. Railroads were not going to build terminals in conjunction with the canal not only because they were unsure of the usage the facilities would get on this dead end canal but also because if successful, such facilities would cut into their own carrying trade.

The situation was partially remedied in 1910 when the firm of Smith-Hippen built two grain elevators on the feeder canal. For some years, small grain shipments made to distilleries in Pekin and Peoria on the Illinois River were carried on single barges powered by steam operated towboats. A few other elevators were constructed and grain transit became the mainstay of Hennepin Canal commerce from 1909 until 1913 (grain accounted for 55% of all commodities carried on the Hennepin Canal in this period). However, no truly significant grain hauling business developed: over the five year period a total of only 21,073 tons of grain were hauled. Access to large metropolitan markets was just too expensive and too inadequate. Only a limited number of grain producers in the immediate vicinity of the canal itself could successfully compete in the markets of the mid-Illinois River basin.

The transport of salt was another potentially major freight market for the canal. Beginning in 1912, the Morton Salt Company shipped approximately 1,200 tons of salt from Chicago to Davenport, Iowa, via the canal. In 1913, they shipped approximately 2,000 tons. However, in that same year, Joy Morton, president of the company, discontinued service of one of its steamboats because the I & M Canal had become so shallow that navigation was nearly impossible. In succeeding years, all Morton shipments were phased out for the same reason.

Although the Corps had been promoting the improvement of the Illinois River for thirty years, no progress had been made on the channel between LaSalle and Joliet. Perhaps to force the issue and end the stalemate, in 1915 -- only eight years after it was officially opened -- serious consideration was being given to abandonment of the Hennepin Canal. By that year, the record commcial tonnage carried on the canal was 12,222 -- reached in 1914. Although this 1914 tonnage record is almost inconsequential compared to the canal's maximum capacity (18,000,000 yearly), the record was not equaled or exceeded until 1921.

The canal's failure to come up to expectations is even more obvious when one considers the cost of construction and annual expenditures for operation

and care. By 1916 a total of $9 million had been spent on the project. In comparison, its commerce -- a total of less than 70,000 tons, not counting construction and maintenance supplies moved -- is insignificant.

The abandonment argument was not, however, pushed very far at that time. The Corps explained the canal's difficulties in terms of the lack of a suitable water connection to Chicago. Even though the Chicago Sanitary and Ship Canal had solved the problem from Lake Michigan to the Illinois River, a bottle-neck still existed on that river from Joliet to LaSalle. The Corps got the response they wanted from both the federal government and the State of Illinois. In 1918-19, the I & M from Joliet to LaSalle underwent a temporary rejuvenation financed by federal funds. But more importantly, in 1919 the Illinois General Assembly passed an act authorizing construction, operation, and maintenance of a deep water way from Lockport to Utica on the Illinois River.Such a project would remove the bottle-neck in the east-west route of which the Hennepin was a part. It would also connect the Chicago Sanitary and Ship Canal with the improved Illinois River channel which the Corps had completed between Utica and the Mississippi River.

There was little change in the Hennepin Canal for the next ten years. In the mid 1920's, the State of Illinois started improving the Illinois River from Utica to Lockport. The end of the Hennepin Canal's problems seemed to be at hand. Expectations for the canal rose. Local interest was aroused once again. Private entrepreneurs already established along the canal benefitted from the publicity accruing to the Hennepin Canal as a result of the Illinois River work. Other businessmen, perhaps hoping to get established before it began to boom as a commercial waterway, set up firms and began to offer services of various sorts connected with the canal. Annual commercial tonnage stopped fluctuating so much and leveled out at low, but steady, rates (averaging 10,000-15,000 tons yearly). By the late 1920's, use began to pick up noticably. In 1929 the canal had its all-time highest use: 30,161 tons.

By 1930, however, not only had the Great Depression begun to make its mark on commerce in general but the full significance of the Illinois River improvements was beginning to dawn on local residents and businessmen. Commercial tonnage carried on the Hennepin Canal decreased by nearly 40% from the previous year: only 18,142 tons were transported in 1930.

The navigation structures being constructed on the Illinois River were larger than those on the Hennepin Canal, scaled to fit with improvements which the Corps had already made on the Illinois and Mississippi Rivers. Locks were to be 600 feet in length and 110 feet in width. Such structures would certainly eliminate the bottleneck created by the small and deteriorated I & M canal; the Illinois River project in conjunction with the Chicago Sanitary and Ship Canal provided a spacious route to Chicago. Both the necessary and sufficient conditions for a successful Hennepin Canal as prescribed by the Corps of Engineers from 1870 on were to be met. Yet, the future of the Hennepin Canal was not bright -- as everyone concerned realized by 1930 and as the Corps of Engineers had known since 1919.

The Hennepin Canal, which was not a commercial success because it was too large, was now, ironically, going to be too small. The solution to the canal's original problem was going to render it obsolete. The new situation, which would be created by the completion of the Illinois River improvement from Utica to Lockport, would only emphasize the limitations of the Hennepin Canal when compared to more modern navigation facilities, the canal might be eliminated altogether.

Operation in conjunction with a more capacious facility would not necessarily lead to maximum utilization of the Hennepin Canal nor the under-use of the larger waterway. Even though it was the shortest one, the Hennepin Canal was not the only all-water route between the Great Lakes and the Upper Mississippi Valley. It was possible to pass from the Great Lakes via the Chicago Sanitary and Ship Canal to the I & M Canal and from there into the Illinois River. Traffic could proceed down the Illinois to the Mississippi and then head up the Mississippi. As long as the I & M Canal was still in active service, there was little advantage in traveling that longer alternative route even though it was larger once through the bottleneck that the I & M created between LaSalle and Joliet. Without a change of vessels at LaSalle, the traffic on either route was limited to virtual packetboat size by the I & M Canal's facilities. Consequently, most users opted for the shorter route via the Hennepin Canal.

Once the Illinois River project replaced the I & M, however, capacity would no longer be restricted on the longer route. The completion of the improvements from Lockport to Utica would mean that the entire Illinois River and the Chicago Sanitary Canal had the same capacity as the modernized Mississippi River navigation facilities. Shipments much larger than those it was possible to carry on the Hennepin Canal could travel to and from the Upper Mississippi Valley with ease on the alternate route.

The difference in capacities of the two routes would particularly hurt the Hennepin Canal because methods and machinery for through-water transport had changed. The Hennepin was designed for packetboat traffic. Twentieth century technology had created vastly increased lock sizes which promoted the used of the large towboats and barge units similar to those now in use. Any such units involving more than one, or at most, two small barges could not travel the Hennepin with its extensive number of small, manually-operated locks and its narrow channel with many sharp bends. Fears arose that most barge lines would find operating modern units with larger load capacities over the longer route more economical than more frequent short hauls over the Hennepin.

Federal authorities encouraged these fears of imminent collapse. The River and Harbor Act of July 3, 1930, belatedly provided for an examination and survey of the Hennepin to determine the possibilities of enlarging the channel. Though the Corps of Engineers had been urging an improvement of the Illinois River for nearly fifty years and knew the specifics of the River project for over ten years, they apparently had never officially studied its full ramifications for the Hennepin. The Act authorized an examination and survey of a navigable channel nine feet in depth, with an increased width and enlarged locks. The engineers were also to make a plan for reducing the number of locks Furthermore, they were to make a preliminary examination and survey of a navigable channel nine feet in depth, with an increased width, and enlarged locks

The engineers were also to make a plan for reducing the number of locks. Furthermore, they were to make a preliminary examination and survey ofan additional nine foot channel from Janesville, Wisconsin, on the Rock River to the head of the feeder on the Rock River at Sterling-Rock Falls. The canal would then continue from there to Rock Island, Illinois. The Rock Island District of the Corps of the Corps of Engineers filed a favorable preliminary report in 1931 and continued to study the situation.

Meanwhile, commercial activity continued to decline. The years 1932 through 1936 was a major period of inactivity on the Hennepin Canal: a total of only 35,513 commercial tons were carried during the whole five year period. The inactivity can be related in part, to the Great Depression. The specific downward cycle was, perhaps, set in motion by a major break in the canal bank in 1932 which forced the closing of the waterway for significant portions of the season. Moreover, in 1933 the improved Lockport to Utica section of the Illinois River was actually opened to navigation. A major factor, too, was the fear of being trapped on a commercial backwater. Business and commercial interests did not want to be involved with a project which had a public image of failure. Without active participation and cooperation by the private sector -- shippers, manufacturers, etc. --the Hennepin Canal could not be a success.

By 1937 the Rock Island District had finally finished their study of the Hennepin Canal and were ready to offer analyses and recommendations for it in light of the opening of the Illinois River to large scale shipping. The report concluded that the existing canal was incapable of attracting any appreciable amount of traffic because of its physical limitations. Simultaneously, the engineers stressed that if their proposed plan of enlargement was carried out, the existing limitations of the canal would be removed. The new facilities would be comparable in navigation dimensions to both the Illinois and Mississippi Rivers and, therefore, large enough to attract a great deal more commerce. The Rock Island District engineers predicted even more success for their improved Hennepin Canal than their predecessors had for the original project. They estimated initial commerce would be close to 1,700,000 tons annually.

Although this report was negative in relation to the existing canal, it did hold out bright prospects for the future of the Hennepin Canal. Perhaps in response to this encouragement, commerce began to pick up again.

Even so, the fact that the Rock Island District of the Corps of Engineers favored enlargement did not mean it would be done. The Chief of Engineers' Office had to review the report and then, only if the proposal fit into the Corps of Engineers' national program, did it go on to Confress for a final decision. The Chief's office took little immediate action on the Hennepin Canal proposal. Perhaps to force the issue as they had done so successfully in 1916 in relation to an adequate Chicago connection, the engineers reported that the Hennepin Canal should be abandoned if the enlargement was not carried out immediately. To emphasize the crisis nature of the situation and the limited use it received, the Corps allowed the canal to deteriorate considerably. In 1938 no funds were used for rehabilitation work. The only money spent was on maintainance of bridges and structures pertinent to drainage. The engineer-in-charge, Colonel Earl E. Gesler, explained that it was not advisable to spend money on repairs to a waterway which would soon be either abandoned or rebuilt. (This policy had to be temporaily reversed after a major break in the canal occurred in the spring of 1939. Repairs delayed the opening of the canal to navigation until July 13 of that year.)

In April 1939, the Corps of Engineers called public hearings in Washington

on the fate of the Hennepin Canal. Three major arguments were presented against abandonment and in favor of enlargement. First, construction of the improved canal would provide many jobs in a period of continued high unemployment. Secondly, potential traffic for the enlarged Hennepin Canal would be even greater than figures from the Illinois River would indicate. Once the Mississippi River channel at Rock Island was deepened from 4.5 feet to nine feet -- a project already in progress -- it could be expected to provide more traffic. Finally, abandonment was an irreversable step; it meant draining the canal, allowing the banks to deteriorate and aqueducts to wash away. If the canal was ever to be reopened, the expense to make it navigable again would be exhorbiant.

In 1939, the Washington Office of the Corps of Engineers finished their review of the Rock Island District's proposals and arguments. They did not send the enlargement and improvement of the Hennepin Canal on to Congress; they concluded that enlargement was not economically justified at the time. The Office of the Chief of Engineers, however, did not recommend abandonment. They separated the two questions which had been merged by the Rock Island Office, perhaps for "political" reasons.

Consequently, commercial traffic continued on the Hennepin Canal. This traffic, however, consisted mainly of local commodities being moved within the canal's immediate vicinity. Throughout the early 1940's, agitation for and against modernization of the canal continued. In 1945 the Rock Island District of the Corps of Engineers issued another report, bringing the matter to a head. Their report advocating modernization was supported by the Saint Louis Office of the Corps of Engineers -- once the focal point for anti-Hennepin Canal agitation. The response from Washington was quick and definite. The Board of Engineers for Rivers and Harbors presented an unfavorable report on the modernization proposal, concluding that the cost would be too great and the value doubtful. There was no promising "at this time" in the 1945 decision

Perhaps as a result of this pronouncement, another major decline in commercial use began in 1946. All traffic was local and meager: only 866 commercial tons in 1946 and 394 in 1947. Consequently, on April 7, 1948, the Corps issued a navigation notice which put the Hennepin on a limited service basis. The canal was to be open to all types of navigation, recreational and commercial, on Thursdays and Fridays if arrangements had been made one day in advance; commercial tows could travel the canal on other week days if they made arrangements at least seven days in advance.

Although this allowed the Corps to reduce the labor force, it did not solve the problem of commercial usage. In 1948, no commercial tonnage was reported. In 1948 and 1950, the only commodities moved were those used in maintenance of the canal itself.

In spite of the dismal commercial fate of the Hennepin Canal in this peri-

od, there was still traffic on it. Recreational navigation increased in the post-war years. From its opening in 1907 to the present, the Hennepin has been used as much for recreation as for commerce. The Corps rules and regulations for its operation stated that the canal lands were purchased for the purposes of navigation and construction, and for the exclusive use of United States government employees. But the canal was always used for other purposes and by other than government employees. Fishing and picnicking were always common along its banks. Fish caught in the canal still hold Illinois records. Swimming, too, was popular. Fishing and swimming were actually prohibited only in the lock chambers. There were even organized recreational programs along the canal.

Passenger excursion boat service also started early. The greatest passenger use occurred between 1916 and 1918, the highest usage coming in 1918 with over 35,000 passengers. Unprofitable, it was discontinued well before World War II. In later years, passengers travelled in pleasure craft. Much of this traffic originated on the Rock River near the head of the feeder and travelled a triangular route which took several weeks and included both the Illinois and Mississippi Rivers.

By 1950, the canal was so deteriorated that in some places pleasure traffic was all that could pass. Only 3.5 feet of water remained in the Rock River section of the main line while only four feet flowed in the feeder. But the Rock Island District Office of the Corps of Engineers, which directly administered the canal, still refused to authorize more than minimal maintainance. It seems they continued to contend that if modernization was not carried out, abandonment had to begin. The threat of abandonment kept at least the recreational users of the canal lobyying Washington in favor of modernization.

It was not surprising then that when the Corps of Engineers reviewed it's national program, the Hennepin Canal came up for discussion. In 1951 the Corps suspended lock operations and eliminated nonessential maintainance expenditures on seven canalized waterways which afforded little or no benefit to general commerce and navigation. The Hennepin Canal was on the list. On June 20, 1951, the Division of Engineers issued a public notice that the canal would be closed to commercial navigation after June 30, 1951. It remained open to recreational use. Simultaneously, the Rock Island District Office began a detailed study of effective disposal of the canal property.

Considering the Rock Island District Office's previously expressed attitudes and opinions, it was a foregone conclusion that their report would equate effective disposal of canal property with abandonment. Residents of northwest Illinois familiar with the recreational value of the canal raised a storm of protests; newspapers, Chambers of Commerce, the Illinois Federation of Sportsmen Clubs and many other groups joined the demonstration.

As part of the general outcry, the president of the Illinois Branch of the Izaack Walton League wrote Governor Adlai Stevenson and suggested the Hennepin Canal be made a state park. Senator Everett Dirksen of Illinois also urged the transfer of the canal to the state for recreation purposes. Governor Stevenson himself had advocated such an action in 1936 when he was a congressman and again expressed interest in the transfer in 1951, promising an investigation of the possibilities.

With such strong popular support and Governor Stevenson's leadership, the 68th General Assembly (1951) petitioned the federal government to postpone abandonment plans until the State of Illinois could take whatever action necessary to insure effective utilization of the canal for recreational and conservation purposes. Consequently, complete abandonment was not carried out

and the canal put in a stand-by maintainance category until final disposition could be determined. In the fall of 1951, the Corps reduced the water level from seven feet to five feet and only performed work necessary to maintain and safeguard the canal and its structures. From 1952-1955, the average annual cost was less than $100,000. Although the canal did remain open for recreational use, the Corps neither promoted that recreation nor developed the area to facilitate it. Pleasure boating and fishing were the main activities.

Simultaneously, the Corps prepared a four-part report covering complete abandonment (restoration of the land to its original state), partial abandonment (draining and removing some structures), and development for recreational uses (both as a whole and in part). The report estimated costs of complete abandonment at $10,000,000 and partial abandonment at $1,700,000.

The Illinois Department of Conservation also started immediately on a one year fishing and engineering study. This report estimated a cost of $2,521,439 for conversion of the canal from commercial waterway to modified recreational area. Moreover, the National Park Service made a preliminary report, recommending that the canal be maintained for recreational purposes.

In 1953 the Illinois House and Senate created the Illinois-Mississippi Canal and Lake Sinnissippi Commission, authorized to study the feasibility of saving the Hennepin Canal and Lake Sinnissippi for recreational uses. The Commission was also to consult with federal and state officials and private individuals about the matter and report its findings and recommendations to the General Assembly.

The Commission was not a standing commission, but its life could be renewed every two years, as it has been at every session since, with the same duties and responsibilities.

Its first step in 1953 was to open negotiations with the Corps of Engineers Before much progress was made in these negotiations, two problems emerged: 1) the federal government only had flowage easements to the land under Lake Sinnissippi and not clear title. Because the canal was no longer a navigalbe waterway, the Commission felt that the land underlying its reservoir reverted to its original owners. 2) The Illinois Constitution forbade the General Assembly to make appropriations to aid railroads and canals. The Commission concluded that the State could not take possession of the canal for any purposes without a constitutional amendment.

In light of these discoveries, the Corps agreed to postpone abandonment. The Commission then held four public meetings, each at a different location along the route, to discuss preserving and developing the canal as a park area. The hearings were well attended and both opponents and proponents spoke. The popular agitation first apparent at these meetings continued for years in varying degrees of intensity. The majority of support came from local spor-

tsmen and conservation groups, some founded primarily to preserve the canal.

The favorable response at these public hearings led the Commission to Washington, D.C., in April 1953 to confer with federal agencies for approval for a National Park or Memorial or public recreation area. Then the 69th General Assembly memorialized Congress, requesting much the same and also asking that it authorize the Corps to maintain the canal and lake in standby status until a final disposition could be made.

In November 1954, the constitutional provision forbidding the use of State funds in connection with the canal was removed by referendum. The Blue Ballot of 1954 paved the way for State ownership of the canal and lake.

At the same time the National Park Service concluded that the area did not meet the scenic and historic requirements of a National Park or monument. Its report, however, did recommend that the area be rehabilitated and transferred to the State as a recreation area.

In 1955 the Commission petitioned Congress with what they thought was a compromise. They asked the federal government to replace thirty-two locks with earthen filled dams and remove the bridges and aqueducts and secure free simple title (as opposed to the dubious flowate easements in effect) to land under the lake. Then the State offered to lease the land from the federal government and pay for maintenance and recreational development.

To facilitate this compromise -- in its more refined version in which the federal government would give, rather than lease, full title to the canal and adjacent lands to the State -- in July 1955, Governor William Stratton signed House Bill 1202. This bill authorized the Departments of Conservation and Public Works and Buildings to enter into negotiations with representatives of the United States for accomplishing a title transfer after the Corps of Engineers had rehabilitated the canal. The canal would then become a State Park. The bill cleared the way, on the State's side, for a State Park -- a Hennepin Canal Parkway -- under the Department of Conservation, but it was not the final agreement for transfer. Federal legislation was still needed to authorize the rehabilitation and transfer. And the repairs and rehabilitation had to be planned, financed, and accomplished before it could take place.

Bills providing for rehabilitation and transfer were introduced in 1955, but no action was taken. Instead, the question of enlarging the canal and reopening it to navigation came up again. Traffic on the Upper Mississippi and Illinois Rivers had increased and some local Illinois factions argued that a canal short-cut between the two was again economically possible. Although the Corps eventually rejected the request to re-survey for commercial purposes, the discussion delayed Congressional action well into 1956.

In 1956 and 1957, a number of bills were introduced providing for the canal's rehabilitation and transfer. None, however, got on the floor for consideration. As a result, they were included in large Omnibus Bills which President Eisenhower vetoed.

At last, the Omnibus Bill of 1958 which included provisions for the canal passed and on July 3, 1958, President Eisenhower signed it into law as Public Law 85-500. This act paved the way for transfer by 1) providing that the Corps would get free and simple title to land under Lake Sinnissippi; 2) authorizing the Corps to spend the $2,000,000 appropriation for repairs and modifications to place the canal and lake in condition for use; 3) authorizing the State to use a proper amount of water from the Rock River for the public recreation facility; and 4) authorizing the Corps to negotiate a transfer agreement with the State.

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All that was needed after the passage of this bill was an agreement between the State and the Corps as the representative of the United States. This agreement itself, however, was contingent on an understanding about what repairs and modifications -- within the $2,000,000 limit -- were necessary. Reaching such an accord proved to be difficult. But in December 1960, the Commission and the State of Illinois signed an agreement by which the Corps would begin rehabilitation and repair work in accord with a mutually agreeable priority schedule, but would stop when the $2,000,000 ran out. All of the work was to be completed by 1964. Once these repairs and modifications had been done, the canal would be transferred to the State for use as a state park.

The first priority item was the repair and modification of Locks 14,17,18, and 20. The Corps did not put these four locks on the eastern end of the mainline back into working condition; instead, they removed the old gates and operating machinery and put in a concrete headwall at the upper end of each lock chamber to maintain five feet depth. They also replaced deteriorated cement. The second priority item was the repair of the government dam and the navigable lock at the head of the feeder. These were to be followed by the rehabilitation of aqueducts and culverts and restoration of Locks 22, 23, and 24. The Corps restored these three locks on the western end of the mainline to full operating condition to accomodate recreational boat traffic which would use the canal when it became a park.

The Corps began work in 1961. By the end of that year, they had completed modification work on Locks 14, 17, 18, and 20. They had also repaired all but one culvert, all the flushing wells on the feeder, and started work on the restoration of Lock 22. However, at the end of 1961 work slowed down considerably. The Corps began to complain that the State was not approving the completed work and as a result they did not want to risk having to re-do it after the $2,000,000 was spent. Clearly, the $2,000,000 was not enough. State officials were unsucessfully seeking additonal funds.

Finally, in 1962 Congress enacted and approved Public Law 87-874 authorizing an additional $800,000 for rehabilitation with the stipulation that the funds were to be spent before the State assumed ownership of the canal. As welcome as these additional funds were, both the Corps of Engineers and the Illinois-Mississippi Canal and Lake Sinnissippi Commission knew that at least $10 000,000 would be necessary to satisfy the State's demands. The 1962 appropriation did little to expedite the work.

By 1963 with work still stalled, Governor Otto Kerner announced he had interested the U.S. Department of the Interior in studying the canal and lake as a possible national park site. Simultaneously, the Illinois-Mississippi Canal

and Lake Sinnissippi Commission recommended that the State accept less than full title to the land under Lake Sinnissippi. If such an agreement were reached, the Corps of Engineers would not have to continue delaying rehabilitation work in order to hold funds for eventual purchase of the land. The State, however, did not act on this suggestion.

Instead, in 1965 local citizens and newspapers in the Rock Island vicinity began to campaign actively for enlargement of the canal so that it could again be used for commercial navigation. They argued that a new canal would offer not only commercial possibilities for the area but also recreational facilities as good as or better than the existing canal. Estimated cost of a new canal was by then between $100,000,000 and $200,000,000. The Corps of Engineers rejected the idea of a new survey for an enlarged Hennepin Canal.

In the same year, after Secretary of the Interior Udall made a personal tour of the canal, the Department of the Interior recommended it as a park but rejected it as a National Park.

Interest and action on the project lagged from 1965 until 1969. In 1969 state and federal representatives agreed on a final total of $6,328,000 for rehabilitation work. This figure included the 1962 appropriation of $800,000 plus additional funds of $5,728,000. By this 1969 agreement the State of Illinois also agreed to accept title to the canal before all the agreed upon rehabilitation work was completed.

On August 1, 1970, the State of Illinois accepted full title and ownership of the Hennepin Canal with the stipulation that the federal government would provide the additional $5,728,000. Since then, the State of Illinois had operated the canal as the Hennepin Canal Parkway State Park. In the 1970's the Corps of Engineers, using an additional federal appropriation secured in 1971, and the Department of Conservation, using state funds, have continued restoration and modification.

The Department of Conservation has developed specific recreational facilities along the canal. A new visitor's center is open north of Sheffield on the main line at Mile 22. Here there are boat launch and day use facilities (picnic tables, toilets, and parking areas). Other day use facilities are scattered along both the main line and the feeder. A second boating launching ramp is accessible west of Wyanet in Mile 17 of the mainline. Boating is permitted any place on the canal, but restricted to ten horsepower motors to save the bank from wave wash. The Department has also facilitated fishing in many ways, including the construction of a wheelchair fishing area at Lock 24.

The entire towpath is open to hiking and bicycling. Horse trails are also open. A sixty mile snowmobile trail parallels the feeder from Rock Falls to Mineral and then westward to Geneseo. Snowmobilers -- and trappers -- must register with park officials. There is no hunting at the Hennepin Canal.

The Department has designated that portion of the main line from Mile 13.8 to Mile 17.9 be maintained and developed as an interpretive area.

FOOTNOTES

[1]Letter, April 13, 1883, Galer to Bradsby, quoted in H.C. Bradsby, History of Bureau County Illinois (Chicago: World Publishing Company, 1885), p.226.

[2]U.S. Army Corps of Engineers, Annual Report of the Chief of Engineers: 1887 (Washington: U.S. Government Printing Office, 1887), p.2144.

[3]Letter, October 20, 1900, Sanitary District of Chicago to a Board of United States Officers, quoted in Wilbert L. Bonney,"Descriptive and Historical Sketch of the Illinois and Mississippi Canal" unpublished report prepared for the Chief of Engineers, Rock Island,Illinois, 1908, p.9.

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[4]Roald Tweet, A History of the Rock Island District Corps of Engineers (Rock Island, Illinois: U.S. Army Engineers District, 1975), p.68.

[5]L.L. Wheeler,"Construction and Operation of the Illinois and Mississippi Canal, Lock at Rock Falls, and Movable Dam" unpublished paper for the Second Lieutenants who visited Sterling, Illinois, September 25, 1911, p.14.

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10. Geographical Data

UTM References:

A.	16/301,920	4572,840
B.	16/301,440	4572,840
C.	16/299,660	4575,100
D.	16/298,740	4575,280
E.	16/295,900	4573,890
F.	16/295,450	4573,980
G.	16/295,270	4574,500
H.	16/293,920	4575,040
I.	16/292,120	4574,340
J.	16/289,350	4577,300
K.	16/288,050	4577,700
L.	16/284,750	4580,900
M.	16/283,100	4581,300
N.	16/282,850	4581,800
O.	16/282,050	4582,300
P.	16/281,300	4582,250
Q.	16/280,750	4583,125
R.	16/280,750	4583,650
S.	16/280,200	4583,950
T.	16/279,825	4584,350
U.	16/275,250	4584,325
V.	16/274,100	4585,000
W.	16/272,575	4586,450
X.	16/271,250	4586,650
Y.	16/270,690	4587,300
Z.	16/	

	Lat.	Long.
Z.	41° 24' 35"	89° 45' 10"
AA.	41° 24' 33"	89° 47' 7"
BB.	41° 23' 42"	89° 48' 52"
CC.	41° 23' 40"	89° 49' 30"
DD.	41° 24' 7"	89° 51' 20"
EE.	41° 24' 10"	89° 52' 37"

Form No. 10-300a
(Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
RECEIVED NOV 14 1977
DATE ENTERED MAY 22 1978

10. Geographical Data

UTM References

FF.	15/744,720	4592,480
GG.	15/746,080	4593,130
HH.	15/749,760	4593,120
II.	15/739,400	4594,040
JJ.	15/738,670	4595,280
KK.	15/737,760	4595,900
LL.	15/736,300	4596,040
MM.	15/733,740	4595,450
NN.	15/732,780	4594,900
OO.	15/731,660	4594,620
PP.	15/725,390	4594,860
QQ.	15/724,800	4595,610
RR.	15/723,050	4595,760
SS.	15/721,500	4595,460
TT.	15/721,140	4595,110
UU.	15/717,870	4594,150

	Lat.	Long.
VV.	41° 25' 10"	89°47' 17"
WW.	41° 26' 20"	89° 47' 17"
XX.	41° 26' 47"	89° 46' 37"
YY.	41° 27' 20"	89° 46' 40"
ZZ.	41° 29' 00"	89° 45' 25"
AAA.	41° 29' 35"	89° 45' 17"
BBB.	41° 31' 15"	89° 46' 5"
CCC.	41° 34' 45"	89° 45' 57"
DDD.	41° 35' 38"	89° 45' 30"
EEE.	41° 36' 53"	89° 45' 35"
FFF.	41° 37' 13"	89° 45' 23"
GGG.	41° 40' 35"	89° 45' 23"
HHH.	41° 42' 37"	89° 44' 15"
III.	41° 44' 17"	89° 45' 47"
JJJ.	41° 44' 53"	89° 47' 55"
KKK.	16/277,275	4627,700
LLL.	16/277,350	4629,400

Property Hennepin Canal N. D.

State Ill. Working Number 11.14.77.1904

78003433

Whiteside, Henry, Bureau Counties

78

TECHNICAL

Photos 3/

Maps 11+1

CONTROL

pl

11.17.77

HISTORIAN

CALL - Ms. Yeater should be commended, but SHPO will hopefully not send us many more this detailed; we do not need this much documentation for federal review! Her monograph could be cited in bibliography.

- We need boundary explanation: why only 89 of 104 miles, and thus only some of historic locks, culverts, & structures, included in nomination? If right-of-way is 2,329 acres, where is remaining 3,702 of 6,031 nominated? Why portion from Bureau to Illinois River not included? (See map #1).
- Maps: we need one map showing entire canal and its relationship to Illinois & Mississippi Rivers, & to Great Lakes. We cannot piece together USGS because they are not all to the same scale.

CALL/ACCEPT 2-11-78 for Sommer

Accept 4/6/78 IFT

ARCHITECTURAL HISTORIAN

ARE ALL RAMPS AND APPROACHES TO BRIDGES INCLUDED? DO WE NEED A VBD. OR IS KNOWING THAT BOUNDARIES COINCIDE WITH OWNERSHIP SUFFICIENT? ARE ALL STRUCTURES LOCATED ON THE USP, OR ARE THEY ONLY LOCATED IN THE DESCRIPTION? ARE THEY ALL ON USGS MAPS?

CALL THEN ACCEPT 1/9/78

CALLED FOR ABOVE 3/6/78 INFO READ 4/3/78 ACCEPT 4/5/78

MSC DOUGAN

ARCHEOLOGIST

OTHER

HAER

The written documentation is among the most comprehensive ever reviewed by HAER - Perhaps it is even too detailed. However, the significance of the site is well justified and it is eligible for NR

Inventory X

Review 1-9-78

Donald C. Jackson

accept

REVIEW UNIT CHIEF

Obviously eligible

my only problem is with boundaries, as indicated above, but these boundaries are based on state designated historic district and if problems arise we can get additional information from Ill conservation - 4/7/78

Accept Lebovich

BRANCH CHIEF

to be precise - my concern is that it might, from the information we have, be difficult to exactly delineate boundaries - but Ill has this information - ∴ this is NR acceptation of state maintained historic district.

KEEPER

Jerry 5/22/78

National Register Write-up _____ Send-back _____ Entered MAY 22 1978

Federal Register Entry 7.5.78 Re-submit _____

INT:2106-74

Hennepin Canal Hist. Dist. #1 of 31
Bureau Co.
Russ Garrett
Neg: I+E. Div. Ill. DOC
April 1970
Looking NW @ the main line 11 miles from the Ill. R.

Hennepin Canal Hist. Dist. #2 of 31
Whiteside Co.
T. A. Campbell, jr. NOV 14 1977
Neg: Dist. I Hist. Office
L+H.S. Div., Ill. DOC

Feb. 1973
looking N. from the head of the feeder line betw. Rock Falls + Sterling, IL.

MAY 22 1978

Hennepin Canal Hist.Dist. #3 g 31
Whiteside Co.
T.A. Campbell, Jr.
Neg: Dist I Hist.Office
L+H.S. Div., Ill. DOC
Feb.1973
looking N. @ head of feeder line

Hennepin Canal Hist. Dist # 4 g 31
Bureau Co.
Russ Garrett
Neg.: I+E. Div., DOC. Ill.

NOV 14 1977

April 1970
Looking E. on main line 23 miles
from the Ill. River

MAY 22 1978

Hennepin Canal Hist. Dist. #5 # 31
Bureau Co.

Photo: anonymous
Neg: Rock Island Dist. Office, US
Army Corps. of Engineers
July 13, 1909
Looking N. from Aqueduct 9

Hennepin Canal Hist. Dist. #6 of 31
Henry Co.
Russ Garrett
Neg: I+E. Div., Ill. DOC
April 1970
looking W. on the main line
48.1 miles from the Ill. River
showing lock 24

Hennepin Canal Hist. Dist. #7 of 31
Bureau Co.
Brian Plawer
NOV 14 1977
Neg: Dist. I. Hist. Office, L+H.S. Div., Ill. DOC
April 1977
Looking E. on main line 14 miles from the Ill. River showing lock 16

Hennepin Canal Hist. Dist. #8 of 31
Bureau Co.
Russ Garrett
Neg: I+E. Div., Ill. DOC
April 1970
looking northeast @ aqueduct 9
over Green River

Hennepin Canal Hist. Dist. #9 § 31
Bureau Co.
Brian Plawer
NOV 14 1977
Neg.: Dist. I Hist. Office, L+H.S. Div., Ill. DOC
April 1977
looking N. near main line 26 miles from the Ill. River

MAY 22 1978

Hennepin Canal Hist. Dist. #10 g 31
Bureau Co.
Brian Plawer
NOV 14 1977
Neg.: Dist. I Hist. Office, L+H.S. Div., Ill. DOC
looking N. @ the bank of the main line 25.5 miles from the Ill. River

Hennepin Canal Hist. Dist. #11 of 31
Bureau Co.
Brian Plawer
Neg: Dist. I Hist. Office, L+H.S. Div., Ill. DOC
April 1977
Looking @ North bank of main line 20 miles from Ill. River


WEIGHT
LIMIT
TONS

Hennepin Canal Hist. Dist. #12 g 31
Bureau Co.
Russ Garrett
Neg.: 1+E. Div., Ill. DOC
April 1970
looking east across the main line 7.5 miles from the Ill. River showing highway bridge No. 4.

Hennepin Canal Hist. Dist. #13 g 31
Bureau Co.
Russ Garrett NOV 14 1977
Neg: I+E, Div. Ill. DOC
April 1970
looking east on main line 23
miles from the Ill. River showing
Highway Bridge 15.

Hennepin Canal Hist. Dist. #14 of 31
Henry Co.
Russ Garrett
Neg.: I+E Div., Ill. DOC
April 1970
looking west on the main line
54.7 miles from the Ill. River
showing Highway Bridge 40

Hennepin Canal Hist. Dist. #15 & 31
Bureau Co.
Russ Garrett
Neg: I+E. Div., Ill. DOC

April 1970
looking west on main line 1.3 miles from the Ill. River showing I-beam bridge

Hennepin Canal Hist. Dist. #16 g 31
Whiteside Co.
Russ Garrett
NOV 14 1977
Neg: I+E. Div., Ill. DOC
April 1970
looking north on feeder line 4.9 miles from Rock River showing Highway Bridge 47

MAY 22 1978

Hennepin Canal Historic Dist. #17
Bureau Co.
Russ Garrett
Neg: I+E. Div., Ill. DOC
April 1970
Looking southeast on feeder
line 16.1 miles from Rock River


CLASS
RATS
OAK
LAWN

Hennepin Canal Hist. Dist. #18 # 31
Bureau Co.
Russ Garrett
Neg: I+E. Div., Ill. DOC
April 1970
looking south on the feeder line
13.4 miles from the Rock River show.
RR Bridge 8

Hennepin Canal Hist. Dist. #19 g 31
Bureau Co.
Brian Plawer
Neg.: Dist. I Hist. Office, L+H.S. Div., Ill. DOC
April 1977
Looking west on main line 16.2 miles from the Ill. R. show. AR bridge 3

RR wy.

Hennepin Canal Hist. Dist. #20 g31
Bureau Co.
Brian Plawer
NOV 14 1977
Neg: Dist. I Hist. Office, L+H.S. Div., Ill. DOC
April 1977
looking east on main line 22 miles from Illi. River RR Bridge

CNW + ___.

near Rt. 88

looking E

Hennepin Canal Hist. Dist. #21 Q 31
Bureau Co.
Russ Garrett
Neg: I+E. Div., Ill. DOC
April 1970
Overseer's house on main canal
25.2 miles from Ill. River

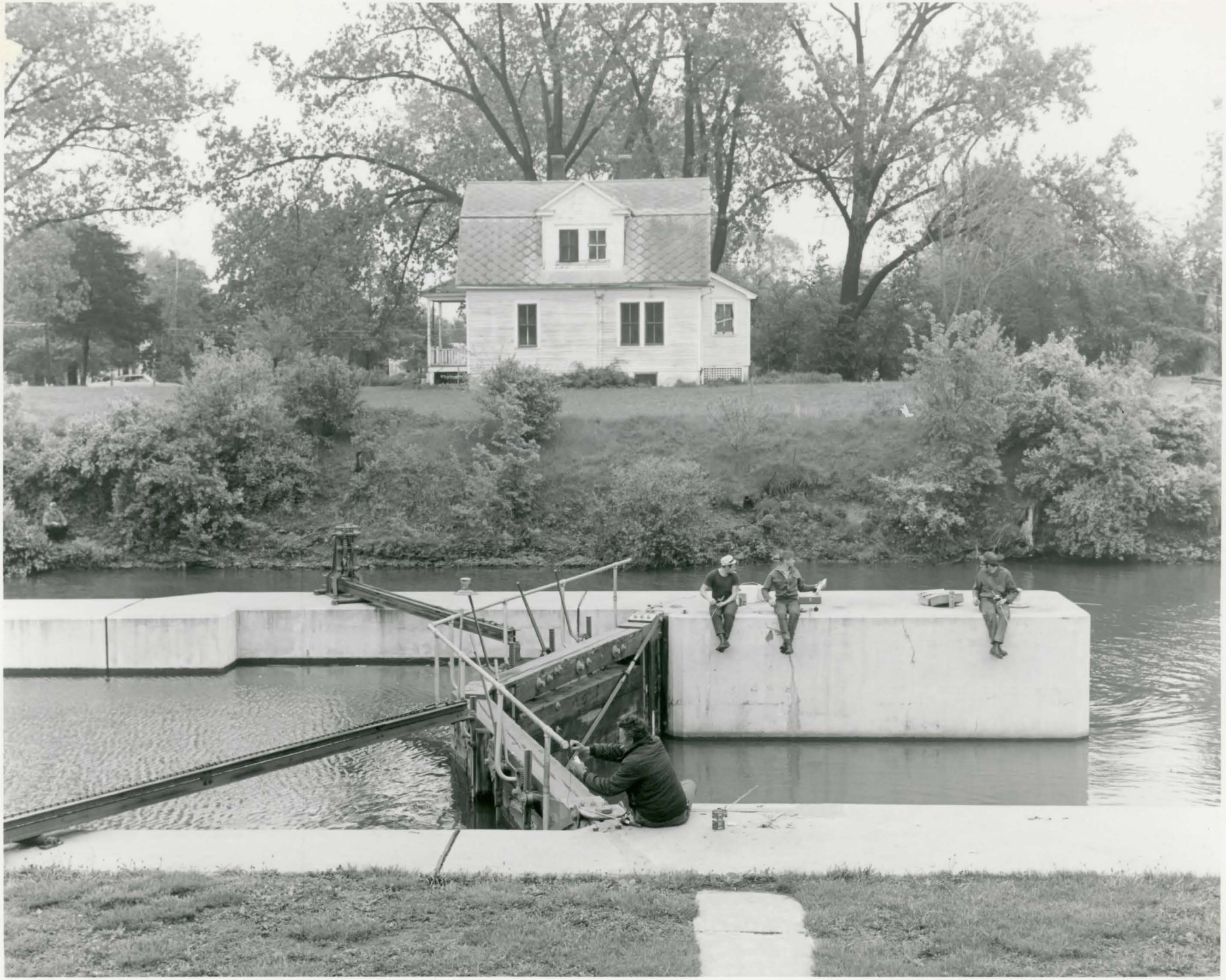
Hennepin Canal Hist. Dist. #22 of 31
Bureau Co.
Russ Garrett

NOV 14 1977

Neg : I+E. Div., Ill. DOC
April 1970
Overseer's house on main canal
16.1 miles from the Ill. River

Hennepin Canal Hist. Dist. #23 g 31
Whiteside Co.
T.A. Campbell, jr. NOV 14 1977
Neg: Dist. I Hist. Office, L+H.S.
Ill. DOC
Feb. 1973
looking south @ overseer's house @ head of feeder

MAY 22 1978



Hennepin Canal Hist. Dist. #24 g 31
Whiteside Co.
Russ Garrett
Neg: I+E. Div., Ill. DOC
April 1970
Lockman's Patrolman's house on feeder canal @ the Rock River

Hennepin Canal Hist. Dist. #25 g31
Bureau Co.
Russ Garrett
Neg: I+E. Div., Ill. DOC
April 1970
Concrete lockman-patrolman house on feeder canal - 20 miles from the Rock River

Hennepin Canal Hist. Dist. #26 of 31
Bureau Co.
Russ Garrett
Neg: ~~I+E. Div., Ill. DOC~~
April 1970
Maintenance bldgs. + barns on main line 25.2 miles from Ill. River

Hennepin Canal Hist. Dist. #27 g31
Bureau Co.
NOV 14 1977
T. A. Campbell, jr.
Neg: Dist. I Hist. Office, L+H.S. Div., Ill. DOC
Feb. 1973
Concrete barn @ lock 11

Hennepin Canal Hist. Dist. #28 of 31
Bureau Co.
NOV 14 1977
T.A. Campbell, jr.
Neg: Dist. I Hist. Office, Nat. H.S. Div., Ill. DOC
Mar. 1972
Concrete bldg. @ Lock 19

MAY 22 1978

Hennepin Canal Hist. Dist. #29 #31
Bureau Co.
T.A. Campbell, jr
Weg: Dist. I Hist. Office, L+H.S. Div., Ill. DOC
Mar. 72
Warehouse southside of main canal across from lock 19

Hennepin Canal Hist. Dist. #30

Bureau Co.

T. A. Campbell jr

NOV 14 1977

Neg: Dist. I Hist. Office, L+H.S. Div., Ill. DOC

Mar. 72

Remains of post factory on main line 14.5 miles from Ill. River

MAY 22 1978

Hennepin Canal Hist. Dist. #31 of 31
Bureau Co.
NOV 14 1977
T-A-Campbell, jr.
Neg: Dist. I Hist. Office, L+H.S. Div., Ill. DOC
Feb. 1972
looking west @ remains of the boat "ways" on main canal 17.7 miles from the Ill. River

STATE OF ILLINOIS
DWIGHT H. GREEN, GOVERNOR
DEPARTMENT OF REGISTRATION AND EDUCATION
FRANK G. THOMPSON, DIRECTOR
GEOLOGICAL SURVEY DIVISION, M. M. LEIGHTON, CHIEF, URBANA, ILLINOIS

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ILLINOIS
STERLING QUADRANGLE
15-MINUTE SERIES

Mapped by the Geological Survey
1946

Only landmark buildings are shown in the cities of Sterling and Rock Falls

ROAD CLASSIFICATION
Heavy-duty — 4 LANE | 6 LANE — Light-duty
Medium-duty — 4 LANE | 6 LANE — Unimproved dirt
U. S. Route — State Route

UTM GRID AND 1946 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:62500

Contour interval 20 feet
Dashed lines represent half interval contours
Datum is mean sea level

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1969

Polyconic projection. 1927 North American datum
10 000 foot grid based on Illinois (West) rectangular coordinate system
To join Dixon map use dotted projection corners
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

STERLING, ILL.
N4145—W8930/15

1946

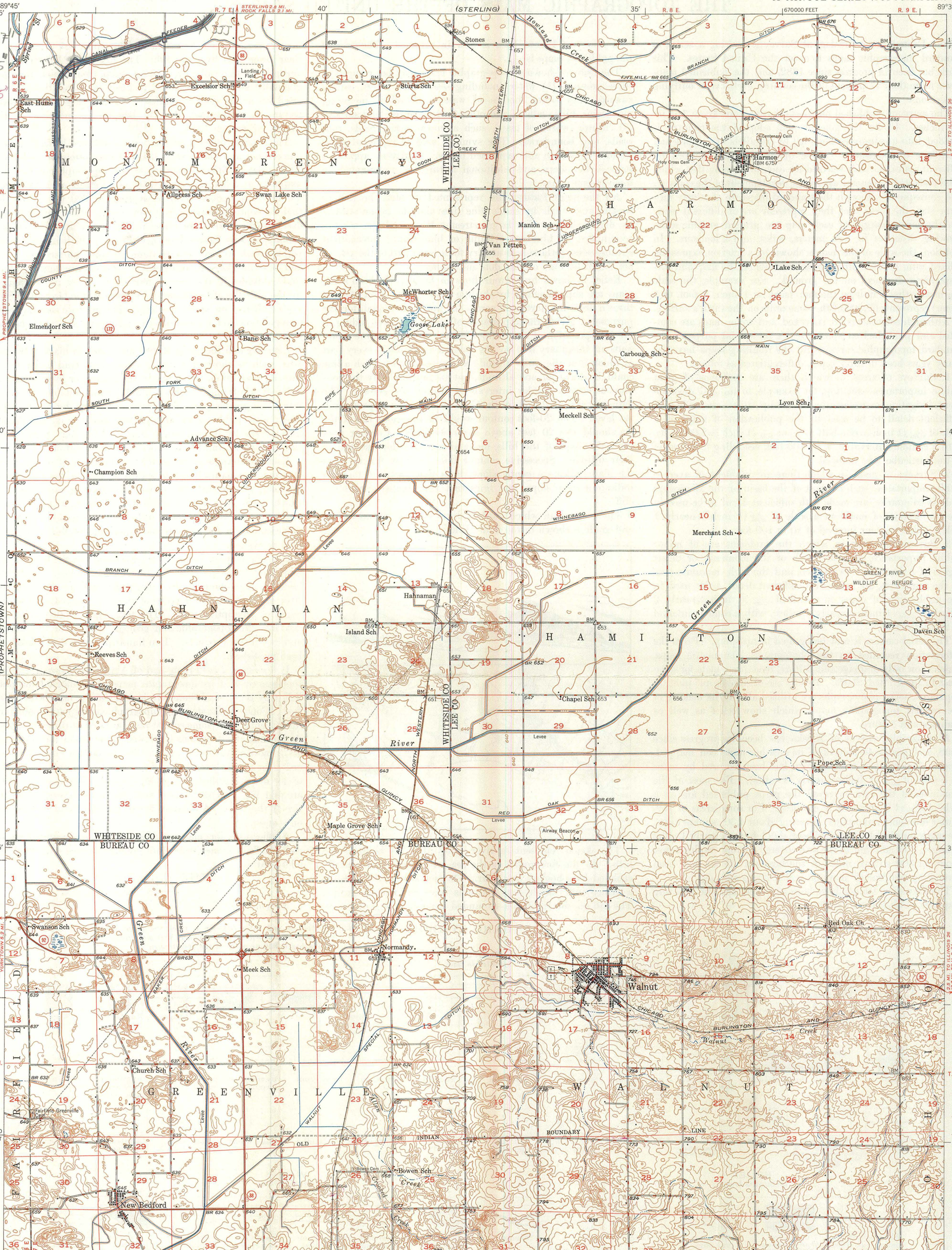
AMS 3067 I—SERIES V763

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF ILLINOIS
ADLAI E. STEVENSON, GOVERNOR
DEPARTMENT OF REGISTRATION AND EDUCATION
NOBLE J. PUFFER, DIRECTOR
GEOLOGICAL SURVEY DIVISION, M. M. LEIGHTON, CHIEF
URBANA, ILLINOIS

WALNUT QUADRANGLE
ILLINOIS
15 MINUTE SERIES (TOPOGRAPHIC)

LAT LONG
III - 41°44'17" 89°45'47"
JJJ - 41°44'53" 89°47'55"
HHH - 41°44'53" 89°47'55"



(MORRISON)
(STERLING)
(DIXON)
(PROPHETSTOWN)
(BUDA)
(ANNAWAN)
(HENNEPIN)
89°45'
41°45'
40'
35'
89°30'
41°30'
R. 7 E.
R. 8 E.
R. 9 E.
T. 20 N.
T. 19 N.
T. 18 N.
670000 FEET
1850000 FEET
620000 FEET
1770000 FEET
STERLING 2.8 MI.
ROCK FALLS 2.1 MI.
2 MI. TO ILLINOIS 26
PROPHETSTOWN 9.4 MI.
9.8 MI. TO ILLINOIS 78
YORKTOWN 5.2 MI.
2.5 MI. TO ILLINOIS 26
12.7 MI. TO U. S. 34
2.8 MI TO ILLINOIS 88
MANLIUS 3.1 MI.
9.7 MI. TO U. S. 6
9.4 MI. TO U. S. 6
MONTMORENCY
HARMON
HAHNAMAN
HAMILTON
GREENVILLE
WALNUT
WHITESIDE CO
LEE CO
BUREAU CO
Harmon (BM 675)
Walnut
New Bedford
Normandy
Deer Grove
Hahnaman
Stones
Van Petten
Goose Lake
Green River
Excelsior Sch
Sturtz Sch
East Hume Sch
Allpress Sch
Swan Lake Sch
Elmendorf Sch
Bane Sch
McWhorter Sch
Manion Sch
Lake Sch
Carbough Sch
Lyon Sch
Meckell Sch
Advance Sch
Champion Sch
Merchant Sch
Island Sch
Reeves Sch
Chapel Sch
Pope Sch
Daven Sch
Maple Grove Sch
Swanson Sch
Meek Sch
Church Sch
Bowen Sch
White Sch
Red Oak Ch
Centenary Cem
Holy Cross Cem
Fairfield Greenville Cem
Bowen Cem
Airway Beacon
Landing Field
GREEN RIVER WILDLIFE REFUGE
CHICAGO BURLINGTON AND QUINCY
CHICAGO AND NORTH WESTERN
ILLINOIS AND MISSISSIPPI CANAL
FEEDER
Howland Creek
FIVE MILE BRANCH
COON CREEK
WINNEBAGO
Walnut Creek
Crooked Creek
Allen
INDIAN BOUNDARY LINE
OLD

Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Culture and drainage in part compiled from aerial photographs taken 1937, 1939 and 1941
Topography by plane-table methods, 1947
Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois coordinate system, west zone

TRUE NORTH
MAGNETIC NORTH
3½°
APPROXIMATE MEAN DECLINATION, 1947

SCALE 1:62500
1 ½ 0 1 2 3 4 MILES
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET
1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON 25, D. C.
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS

ROAD CLASSIFICATION

HARD-SURFACE ALL WEATHER ROADS	DRY WEATHER ROADS
Heavy-duty 4 LANE 6 LANE	Improved dirt
Medium-duty 4 LANE 6 LANE	Unimproved dirt

Loose-surface, graded, or narrow hard-surface
U. S. Route   State Route

WALNUT, ILL.
N4130—W8930/15

EDITION OF 1949

10

THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a series of standard topographic maps to cover the United States. This work has been in progress since 1882, and the published maps cover more than 47 percent of the country, exclusive of outlying possessions.

The maps are published on sheets that measure about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, the areas that they represent are of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, miles, and kilometers. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale $\frac{1}{62,500}$ means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 of the same units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys and the resulting maps have for many years been of three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{31,680}$ (1 inch = one-half mile) or $\frac{1}{24,000}$ (1 inch = 2,000 feet), with a contour interval of 1 to 100 feet, according to the relief of the particular area mapped.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile), with a contour interval of 10 to 100 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, and the high mountain area of the northwest, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{125,000}$ (1 inch = nearly 2 miles) or $\frac{1}{250,000}$ (1 inch = nearly 4 miles), with a contour interval of 20 to 250 feet.

The aerial camera is now being used in mapping. From the information recorded on the photographs, planimetric maps, which show only drainage and culture, have been made for some areas in the United States. By the use of stereoscopic plotting apparatus, aerial photographs are utilized also in the making of the regular topographic maps, which show relief as well as drainage and culture.

A topographic survey of Alaska has been in progress since 1898, and nearly 44 percent of its area has now been mapped. About 15 percent of the Territory has been covered by maps on a scale of $\frac{1}{500,000}$ (1 inch = nearly 8 miles). For most of the remainder of the area surveyed the maps published are on a scale of $\frac{1}{250,000}$ (1 inch = nearly 4 miles). For some areas of particular economic importance, covering about 4,300 square miles, the maps published are on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile) or larger. In addition to the area covered by topographic maps, about 11,300 square miles of southeastern Alaska has been covered by planimetric maps on scales of $\frac{1}{125,000}$ and $\frac{1}{250,000}$.

The Hawaiian Islands have been surveyed, and the resulting maps are published on a scale of $\frac{1}{62,500}$.

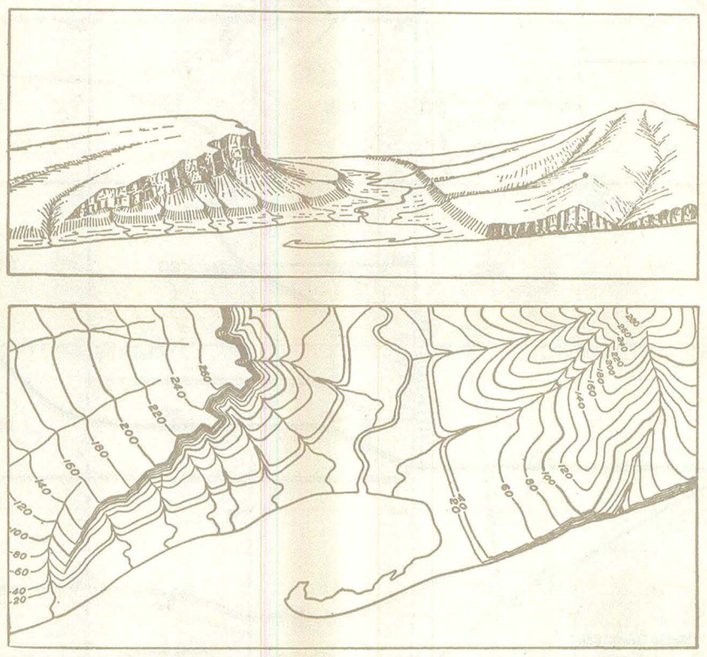
A survey of Puerto Rico is now in progress. The scale of the published maps is $\frac{1}{30,000}$.

The features shown on topographic maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams by double lines. The larger streams, lakes, and the sea are accentuated by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on a few maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The datum or zero of altitude of the Geological Survey maps is mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet above mean sea level. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope, lines that are close together indicate a steep slope, and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly enclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined tableland that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. In order that the contours may be read more easily certain contour lines, every fourth or fifth, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road intersections, summits, surfaces of lakes, and benchmarks—are also given on the map in figures, which show altitudes to the nearest foot only. More precise figures for the altitudes of benchmarks are given in the Geological Survey's bulletins on spirit leveling. The geodetic coordinates of triangulation and transit-traverse stations are also published in bulletins.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Public roads suitable for motor travel the greater part of the year are shown by solid double lines; poor public roads and private roads by dashed double lines; trails by dashed single lines. Additional public road classification if available is shown by red overprint.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. More than 4,100 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

Geologic maps of some of the areas shown on the topographic maps have been published in the form of folios. Each folio includes maps showing the topography, geology, underground structure, and mineral deposits of the area mapped, and several pages of descriptive text. The text explains the maps and describes the topographic and geologic features of the country and its mineral products. Two hundred twenty-five folios have been published.

Index maps of each State and of Alaska and Hawaii showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 percent is allowed on an order amounting to $5 or more at the retail price. The discount is allowed on an order for maps alone, either of one kind or in any assortment, or for maps together with geologic folios. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

THE DIRECTOR,
United States Geological Survey,
Washington, D. C.

November 1937.

NOTE:—Effective on and after October 1, 1946, the price of standard topographic quadrangle maps will be 20 cents each, with a discount of 20 percent on orders amounting to $10 or more at the retail rate.

STANDARD SYMBOLS

CULTURE
(printed in black)

City or village
Roads and buildings
Ruins
Cliff dwelling
Good motor road
Poor road
Public or private road
Trail
Railroads
Electric railroad
Tunnel
Power-transmission line
Wharves
Breakwater and jetties
Bridge
Drawbridges
Ferry *(point upstream)*
Ford
Dam
Dam with lock
Canal lock *(point upstream)*
U.S. township and section lines and recovered corners
State line
County line
Civil Township or district line
Reservation line
Land grant line
City, village, or borough line
Small park or cemetery line
Triangulation point or transit-traverse station
U.S. mineral monument
Boundary monument
Bench mark *(supplementary bench mark shown by cross and black figures without lettering)*
BM × 1232
Cemeteries
CEM
Church, School *(distinguished on recent maps)*
Coke ovens
Tanks and oil reservoirs
Oil and gas wells
Mine or quarry
Prospect
Shaft
Mine tunnel
Mine tunnel *(showing direction)*
Lighthouse or beacon
L.S.S.
C.G.S.
Coast Guard station

RELIEF
(printed in brown)

5463
Elevation above mean sea level *(in black on recent maps)*
Contours *(Contours showing depth of water printed in blue)*
Depression contours
Levee
Wash
Cliffs *(or shown by contours)*
Mine dumps
Tailings or mining debris
Sand and sand dunes

WATER
(printed in blue)

Streams
Falls and rapids
Intermittent streams and ditches
Canals or ditches
Aqueducts or waterpipes
Aqueduct tunnels
Lake or pond
Unsurveyed stream and abandoned canal
Intermittent lake
Glacier *(Or shown by contours printed in blue)*
Spring
Well
Marsh
Submerged marsh

WOODS
(when shown, printed in green)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION
GEOLOGICAL SURVEY DIVISION
URBANA, ILLINOIS

ILLINOIS
PROPHETSTOWN QUADRANGLE

(Cordova) 125000

LAT LONG.
BBB-41° 31' 15" 89° 48' 5"
CCC-41° 34' 45" 89° 45' 57"
DDD-41° 35' 38" 89° 45' 30"
EEE-41° 36' 53" 89° 45' 35"
FFF-41° 37' 13" 89° 45' 23"
GGG-41° 40' 35" 89° 45' 23"

Topography by O. H. Nelson, H. E. Simmons, W. S. Beames, W. E. Baird, and J. H. Taubr
Culture and drainage in part compiled from aerial photographs taken by Air Corps, U.S. Army
Control by U.S. Geological Survey
Surveyed in 1928 and 1931-1932

Scale 1/62500
1 0 1 2 3 4 Miles
5000 0 5000 10000 15000 20000 Feet
1 1/2 0 1 2 3 4 5 Kilometers
Contour interval 10 feet
Datum is mean sea level

Polyconic projection. North American datum
5000 yard grid based upon U.S. zone system, C

ROUTES USUALLY TRAVELED
HARD IMPERVIOUS SURFACES
OTHER SURFACE IMPROVEMENTS
1935

PROPHETSTOWN, ILL.
Edition of 1936

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION
GEOLOGICAL SURVEY DIVISION

COAL VALLEY QUADRANGLE
ILLINOIS
7.5 MINUTE SERIES (TOPOGRAPHIC)

7967 I SE (DAVENPORT EAST)
7967 II SE (PORT BYRON)
7967 III SW (SILVIS)
2966 I NE (MILAN)
2966 IV NW (GREEN ROCK)
2966 I SE (MATHERVILLE)

90°30′ — 41°30′ — 90°22′30″ — 41°22′30″

459 7000m N.

7 10 000m E. 11 12 27′30″ 13 14 25′ 16 440 000 FEET 18

T. 18 N. T. 17 N. T. 16 N.

1 750 000 FEET — 1 720 000 FEET

458 4000m N. 19 000m E.

FULTON 32 MI. 1.1 MI. TO ILL. 92
ROCK ISLAND 11 MI. 0.7 MI. TO ILL. 2 & 92
0.3 MI. TO U.S. 150
DAVENPORT, IOWA 6.5 MI. ROCK ISLAND (U.S. 67) 5.5
4.5 MI. TO U.S. 67 ROCK ISLAND (U.S. 67) 6.1
MILAN 3.4 MI. 6 MI. TO ILL. 199
SHERRARD 5 MI. 9.5 MI. TO U.S. 67
R. 1 W. (ORION) 2966 IV SW
R. 1 E.
ORION 1.8 MI. 13 MI. TO ILL. 17
COLONA 1 MI. CLEVELAND 4 MI.
0.9 MI. TO ILL. 84 GENESEO (ILL. 82) 12 MI.
2.5 MI. TO INTERSTATE 80 GALESBURG (VIA I.-74) 37 MI.

MOLINE
EAST MOLINE
Silvis
Carbon Cliff
S O U T H M O L I N E
H A M P T O N
C O L O N A
C O A L V A L L E Y
R U R A L
W E S T E R N

George Washington School
Wilson Jr High Sch
Glenview Jr High Sch
Township High Sch
Drive-in theater
Coolidge Jr High Sch
Roosevelt School
High Sch
Park
Walls School
Fairgrounds
Water Tower
Jefferson Sch
Rock River View Cemetery
Memorial Park Cemetery
Black Hawk College
Rose Lawn Cemetery
Bowlesburg School
Greenview Memorial Gardens Cemetery
Bowlesburg Cemetery
Trailer courts
Water
Butterworth Sch
Illinois and Mississippi Canal
Lock No 14
Gaging station
Quad City Seaplane Base
Drive-in theater
Poplar Grove
Coaltown Slough
Bowles Slough
Greenwood Slough
Mosquito Creek
TRAILER PARK
Quad City Airport
Golf Course
Glenwood Cemetery
Black Hawk Mine
Coal Valley Cemetery
Coal Valley
Motorcycle Speed Track
Mt Pleasant School
Gem Mine
Radio Towers (WDLM)
Warner
Cem
County Training School
Water Tower
Kingdom School
Sunny Hill
Coal Creek
Shaffer Creek
Case Creek
Hosmer Creek
Mosquito Cr

ROCK RIVER
ROCK ISLAND CO
HENRY CO
FOURTH PRINCIPAL MERIDIAN
BURLINGTON NORTHERN

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1945 and planetable surveys 1948
Culture revised by the Army Map Service from aerial photographs taken 1952–53. Field checked 1953

Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois coordinate system, west zone
1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue

Red tint indicates area in which only landmark buildings are shown

Revisions shown in purple compiled by the Geological Survey from aerial photographs taken 1970. This information not field checked

Purple tint indicates extension of urban areas

MN GN 1°42′ 30 MILS 4½° 80 MILS
UTM GRID AND 1970 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000
1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ILLINOIS
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route — State Route
Interstate Route

COAL VALLEY, ILL.
N4122.5—W9022.5/7.5
1953
PHOTOREVISED 1970
AMS 2966 IV NW—SERIES V863

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1971

UU-15/4594,150(N)
17,870(E)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

GREEN ROCK QUADRANGLE
ILLINOIS
7.5 MINUTE SERIES (TOPOGRAPHIC)

PP-15/4594,880(N)725,390(E)
QQ-15/4595,610 724,800
RR-15/4595,760 723,050
SS-15/4595,460 721,500
TT-15/4595,110 721,140

Mapped by the Army Map Service
Published for civil use by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1952–1953. Field check 1953

Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois coordinate system, west zone
1000-meter Universal Transverse Mercator grid ticks,
zone 15, shown in blue

Unchecked elevations are shown in brown

Revisions shown in purple compiled by the Geological Survey from aerial photographs taken 1970. This information not field checked

Purple tint indicates extension of urban areas

UTM GRID AND 1970 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route — State Route
Interstate Route

QUADRANGLE LOCATION

GREEN ROCK, ILL.
N4122.5—W9015/7.5

1953

PHOTOREVISED 1970

AMS 2966 IV NE—SERIES V863

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1971

MAY 22 1978

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

GENESEO QUADRANGLE
ILLINOIS—HENRY CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 GENESEO 15' QUADRANGLE

(PORT BYRON) (ERIE 1:62 500)

90°15′ 730000m.E. 12′30″ SHADY BEACH 3.4 MI. (ERIE 1:62 500) 10′ 4.8 MI. TO ILLINOIS 92 510 000 FEET 90°07′30″

41°30′ 27′30″ 25′ 41°22′30″

T. 18 N. T. 17 N. T. 16 N.

R. 2 E. R. 3 E.

4597000m.N. 4585000m.N.

COLONA 6 MI. ROCK ISLAND 22 MI. COLONA 8 MI. OSCO 5 MI. CAMBRIDGE 6.2 MI. (GREEN ROCK) (ANDOVER) (CAMBRIDGE) CAMBRIDGE 6.7 MI. NEKOMA 15 MI. (ATKINSON) ATKINSON 6.5 MI. ANNAWAN 12 MI. 9 MI. TO ILLINOIS 92

1 720 000 FEET 1 750 000 FEET

480 000 FEET

H A N N A

E D F O R D

G E N E S E O

O S C O

M U N S O N

GREEN RIVER

Illinois and Mississippi Canal (abandoned)

Illinois and Mississippi Canal (abandoned)

Elks Branch

Big Slough

Drainage Ditch

Geneseo Creek

Geneseo Creek

Geneseo

Lock No 25

Lock No 26

Andrews School

Hart School

Wilder muth School

Edford Cemetery

Oakwood Cemetery

Golf course

Illinois Fish Hatchery

Sewage disposal

Water tower

Ball park

Oil tanks

Park

Radio tower

Water

Oil

pipelines

pipeline

CHICAGO ROCK ISLAND AND PACIFIC

BM 617 BM 612 BM 622 BM 629 BM 611 BM 643 BM 654 BM 761 BM 766

Mapped by the Army Map Service
Published for civil use by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1952–1953. Field check 1953

Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois coordinate system, west zone
1000-meter Universal Transverse Mercator grid ticks,
zone 15, shown in blue

Red tint indicates area in which only
landmark buildings are shown

Unchecked elevations are shown in brown

4½° TRUE NORTH MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 1953

SCALE 1:24000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty ———
Medium-duty ——— Unimproved dirt - - - - -
U. S. Route State Route

ILLINOIS
QUADRANGLE LOCATION

GENESEO, ILL.
NW/4 GENESEO 15' QUADRANGLE
N4122.5—W9007.5/7.5

1953

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON 25, D. C.
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C.—1957
MR 6517

II-15/4594,040(N) 739,400(E)
JJ-15/4595,280 738,670
KK-15/4595,900 737,760
LL-15/4596,040 736,300
MM-15/4595,450 733,740
NN-15/4594,900 732,780
OO-15/4594,620 731,660

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

ATKINSON QUADRANGLE
ILLINOIS—HENRY CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 GENESEO 15' QUADRANGLE

(ERIE 1:62500)
(PROPHETSTOWN) 1:62500
(CAMBRIDGE)
(ANNAWAN 1:62500)

90°07'30" 41°30'
90°00' 41°30'
41°22'30" 90°07'30"
41°22'30" 90°00'

741000m.E.
4597000m.N.
750000m.E.
4585000m.N.

540 000 FEET
1 750 000 FEET
1 720 000 FEET
520 000 FEET

R. 3 E. 5.7 MI. TO ILLINOIS 92
R. 4 E.
R. 3 E.
R. 4 E.
5.6 MI. TO ILLINOIS 81 (GERMAN CORNER)
6.2 MI. TO ILLINOIS 81
GALVA 14 MI.

T. 18 N.
T. 17 N.
T. 16 N.

CLEVELAND 9.5 MI.
GENESEO 3.5 MI.
2.8 MI. TO ILLINOIS 82
PROPHETSTOWN 15 MI.
3.7 MI. TO ILLINOIS 92
HOOPPOLE 6 MI.
OOLONA 16 MI.
GENESEO 2.8 MI.
2.4 MI. TO ILLINOIS 82
ANNAWAN 5.1 MI.
MINERAL 8.9 MI.

PHENIX
LORAINE
GENESEO
ATKINSON
MUNSON
CORNWALL
(GENESEO)

Big Slough Drainage Ditch
Drainage Ditch
Joint Drainage Ditch
Blue
Spring Creek Grange Hall
Mount Hope School
Mt Sunny School
Mizpah Cemetery
Indian Hill
GREEN RIVER
Cem.
Spring
Spring Creek School
Bass School
Illinois and Mississippi Canal
(abandoned)
Canal
Creek
Oat Creek
Spring Creek
CHICAGO ROCK ISLAND AND PACIFIC
pipeline
Grand View School
Grand View Cemetery
Murphy School
Grove School
St Anthony Cemetery
Ball park
Gas
Water tank
Park
Atkinson
ATKINSON ROAD

BM 622
BM 617
BM 628
BM 639
BM 620
BM 609
BM 625
BM 667
BM 642

Mapped by the Army Map Service
Published for civil use by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1952–1953. Field check 1953

Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois coordinate system, west zone
1000-meter Universal Transverse Mercator grid ticks,
zone 15, shown in blue

Unchecked elevations are shown in brown

4° TRUE NORTH MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1953

SCALE 1:24000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ILLINOIS
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
U. S. Route

ATKINSON, ILL.
NE/4 GENESEO 15' QUADRANGLE
N4122.5—W9000/7.5
1953

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON 25, D. C.
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C.-1957
MR 6439

RECEIVED
NOV 14 1977
NATIONAL REGISTER

MAY 22 1978

FF - 15/4592,480(N) 744,720(E)
GG - 15/4593,130(N) 746,080(E)
HH - 15/4593,120(N) 749,760(E)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION
GEOLOGICAL SURVEY DIVISION
URBANA, ILLINOIS

ILLINOIS
ANNAWAN QUADRANGLE

Lat Long
Z-41° 24' 35" 89° 45' 10"
AA-41° 24' 33" 89° 47' 7"
BB-41° 23' 42" 89° 48' 52"
CC-41° 23' 40" 89° 49' 30"
DD-41° 24' 7" 89° 51' 20"
EE-41° 24' 18" 89° 52' 37"

WW-41° 25' 10" 89° 47' 17"
WN-41° 26' 20" 89° 47' 17"
XX-41° 26' 47" 89° 46' 37"
YY-41° 27' 20" 89° 46' 40"
ZZ-41° 29' 00" 89° 45' 25"
AAA-41° 29' 35" 89° 45' 17"

Topography by H.E. Simmons, H.P. Jones, and F.K. Van Zandt
Culture and drainage in part compiled from aerial photographs taken by Air Corps, U.S. Army
Control by U.S. Geological Survey
Surveyed in 1928-1929

SCALE 1:62500

Contour interval 10 feet
Datum is mean sea level

FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Polyconic projection. North American datum
5000 yard grid based upon U.S. zone system

ANNAWAN, ILL.
1929

J-16/4577,300 (N) 289,350 (E)
K-16/4577,700 288,050
L-16/4580,900 284,750
M-16/4581,300 283,100
N-16/4581,800 282,850
O-16/4582,300 282,050
P-16/4582,250 281,300
Q-16/4583,125 280,750
R-16/4583,650 280,750
S-16/4583,950 280,200
T-16/4584,350 279,825
U-16/4584,325 275,250
V-16/4585,000 275,100
W-16/4586,450 272,575
X-16/4586,650 271,250
Y-16/4587,300 270,690

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION
GEOLOGICAL SURVEY DIVISION

ILLINOIS
(BUREAU COUNTY)
BUDA QUADRANGLE

Topography by E. L. Hain, W. S. Gehres, H. E. Simmons, and G. G. Martin.
Surveyed in 1921.

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route — State Route

SCALE 1:62500

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1921

Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois (West)
rectangular coordinate system
1000-meter Universal Transverse Mercator grid ticks,
zone 16, shown in blue

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1959

BUDA, ILL.
N4115—W8930/15

1921

FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON 25, D. C.
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION
GEOLOGICAL SURVEY DIVISION
URBANA, ILLINOIS

PRINCETON SOUTH QUADRANGLE
ILLINOIS—BUREAU CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 HENNEPIN 15' QUADRANGLE

3066 I (BUDA 1:62 500)
3166 IV NW (PRINCETON NORTH)
3166 IV NE (MALDEN)

89°30′ 41°22′30″ 292 000m E. 27′30″ 295 25′ 298 299 710 000 FEET R. 9 E. R. 10 E. 301 89°22′30″ 41°22′30″

4583 000m N.

MENDOTA 24 MI. 0.6 MI. TO JCT. U.S. 34 & ILL. 26

KEWANEE IV/A (U.S. 34) 27 MI. WYANET 4.2 MI.

SEATONVILLE 6 MI. PERU I 6 MI.

1 710 000 FEET

PRINCETON

P R I N C E T O N

S E L B Y

A R I S P I E

Lake Aripie

Lake Rawson

Bureau Valley Country Club

Piper Airport

Perry Hospital

Courthouse

Oakland Cemetery

Trailer Park

Radio Tower

Radio Tower (WZOE)

Drive-In Theater

Gaging Station

Greene Cem

Owls Head

Tiskilwa

Bureau

Gravel Pit

Gravel Pits

Park

Washington Sch

Logan Sch

High Sch

Lincoln Sch

Big Bureau Creek

East Bureau Creek

Old Channel

Hollow

CHICAGO ROCK ISLAND AND PACIFIC

CHICAGO AND ILLINOIS MISSISSIPPI CANAL (ABANDONED)

ILLINOIS AND MISSISSIPPI CANAL

BM 579 BM 533 BM 498 BM 660 BM 461 BM 465

BR 514 BR 504 BR 485 BR 491 BR 454

TISKILWA 2.2 MI.

I.2 MI. TO ILL. 29

DEPUE 6 MI. SPRING VALLEY 12 MI.

HENNEPIN 2.1 MI. OTTAWA 24 MI.

PUTNAM 4.6 MI. PEORIA 40 MI.

T. 16 N.
T. 15 N.

1 680 000 FEET

4570 000m N.

41°15′ 89°30′ 291 292 690 000 FEET 27′30″ 295 297 25′ 298 299 000m E. 41°15′ 89°22′30″

(LACON 1:62 500) 3166 III

(BRADFORD 1:62 500) 3066 II

(DEPUE) 3166 IV SE

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.— 1968

c 4575,100(N) 299,660(E)
D 4575,280(N) 298,740(E)
E 4573,890 (N) 295,900 (E)
F 4573,980 (N) 295,480 (E)
G 4574,500 (N) 295,270 (E)
H 4575,040 (N) 293,920 (E)
I 4574,340 (N) 292,120 (E)

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1965 and planetable surveys 1966

Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois coordinate system, west zone
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

Red tint indicates area in which only landmark buildings are shown

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1966 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

GN MN 1°36′ 29 MILS 3½° 62 MILS

SCALE 1:24 000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ILLINOIS
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U.S. Route — State Route

PRINCETON SOUTH, ILL.
SW/4 HENNEPIN 15' QUADRANGLE
N4115—W8922.5/7.5

1966

AMS 3166 IV SW—SERIES V863

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION
GEOLOGICAL SURVEY DIVISION
URBANA, ILLINOIS

DEPUE QUADRANGLE
ILLINOIS
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 HENNEPIN 15' QUADRANGLE

3166 IV NW (PRINCETON NORTH)
3166 IV NE (MALDEN)
3166 I NW (LADD)
3166 IV SW (PRINCETON SOUTH)
3166 I SW (SPRING VALLEY)

89°22'30" 41°22'30" 89°15' 41°15' 17'30" 20'

Coal Hollow
Hollowayville
Seatonville
Ottville
Marquette
Depue
Mark
Bureau (Bureau Junction)
Hennepin
Greenwood Cem
Searl Ridge Cem
Depue Cem
St John Ch
Sewage Disposal Lake Park
White City Park
Landing Field
Radio Tower
Powerplant
Moronts
Gravel Pit
Gravel Pits
Water Tank
Park
Pk
STEEL PLANT

SELBY
HALL
LEEPERTOWN
GRANVILLE
HENNEPIN

Depue Lake
Turner Lake
Spring Lake
Lyons Lake
Lower Spring Lake
Lost Lake
Lake Rawson
Coleman Lake

ILLINOIS RIVER
BUREAU CO
PUTNAM CO
HICKORY RIDGE LAKE

Bureau Creek
East Bureau Creek
Brush Creek
Negro Creek
Allforks
Wolf Hollow
Old Channel
Big Bureau Cr
Coffee Creek

CHICAGO ROCK ISLAND AND PACIFIC
NEW YORK CENTRAL
NEW YORK CHICAGO ST PAUL AND PACIFIC
CHICAGO MILWAUKEE ST PAUL AND PACIFIC
CHICAGO MILWAUKEE
ILLINOIS AND MISSISSIPPI CANAL (ABANDONED)
C M ST P & P

MALDEN 6 MI.
MOLINE 62 MI.
750 000 FEET
17 MI. TO ILL 89 PRINCETON 5 MI.
PERU INTERCHANGE 7 MI. 54 MI. TO INTERSTATE 55
SPRING VALLEY 5 MI. OTTAWA 25 MI.
SPRING VALLEY 3.1 MI.
DIXON 39 MI. PRINCETON 7 MI.
PEORIA 40 MI. PUTNAM 8 MI.
0.8 MI. TO ILL 29
11 MI. TO ILL 18 PEORIA 44 MI.
(LACON I:62 500) 3166 III
(WENONA I:62 500) 3166 II
STANDARD 3.5 MI. 2.7 MI.

T. 16 N.
T. 15 N.
T. 33 N.
T. 32 N.
R 10 E.
R 11 E.
R. 2 W.
R. 1 W.

1 680 000 FEET
1 700 000 FEET
720 000 FEET

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1965 and planetable surveys 1966

Soundings compiled from charts furnished by Illinois Department of Conservation

Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois coordinate system, west zone
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1966 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
GN MN 1°31' 27 MILS 3° 53 MILS

SCALE 1:24 000
1 MILE 1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER .5 0 1

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ILLINOIS
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
Interstate Route
U. S. Route
State Route

DEPUE, ILL.
SE/4 HENNEPIN 15' QUADRANGLE
N4115—W8915/7.5

1966

AMS 3166 IV SE—SERIES V863

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1968

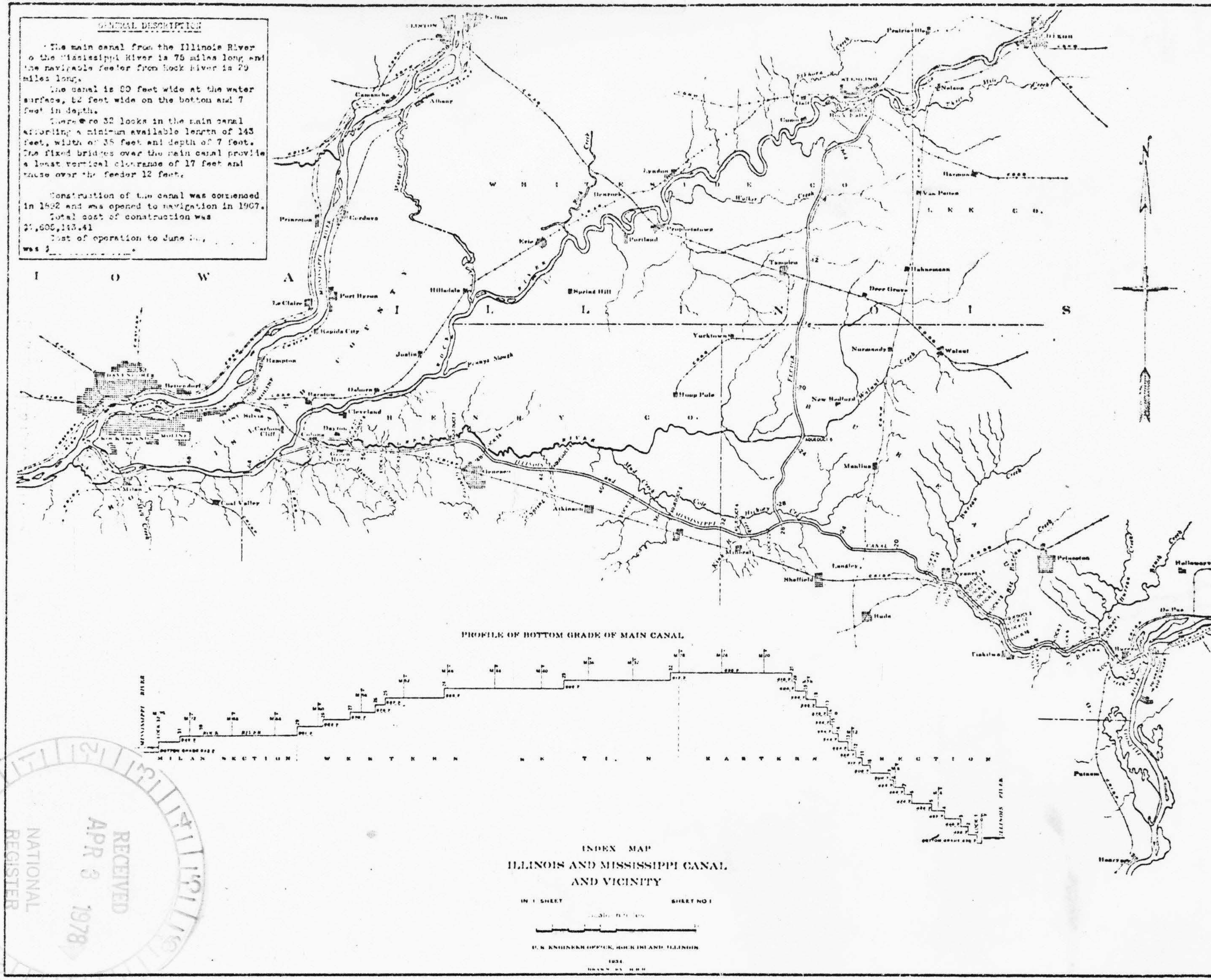
A 16/4572,840 301,920

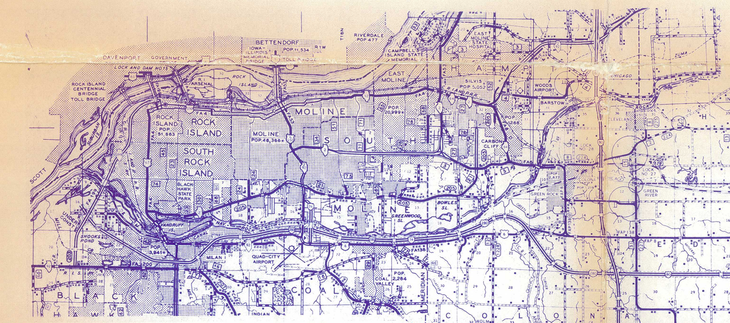
B 16/4572,840 301,440

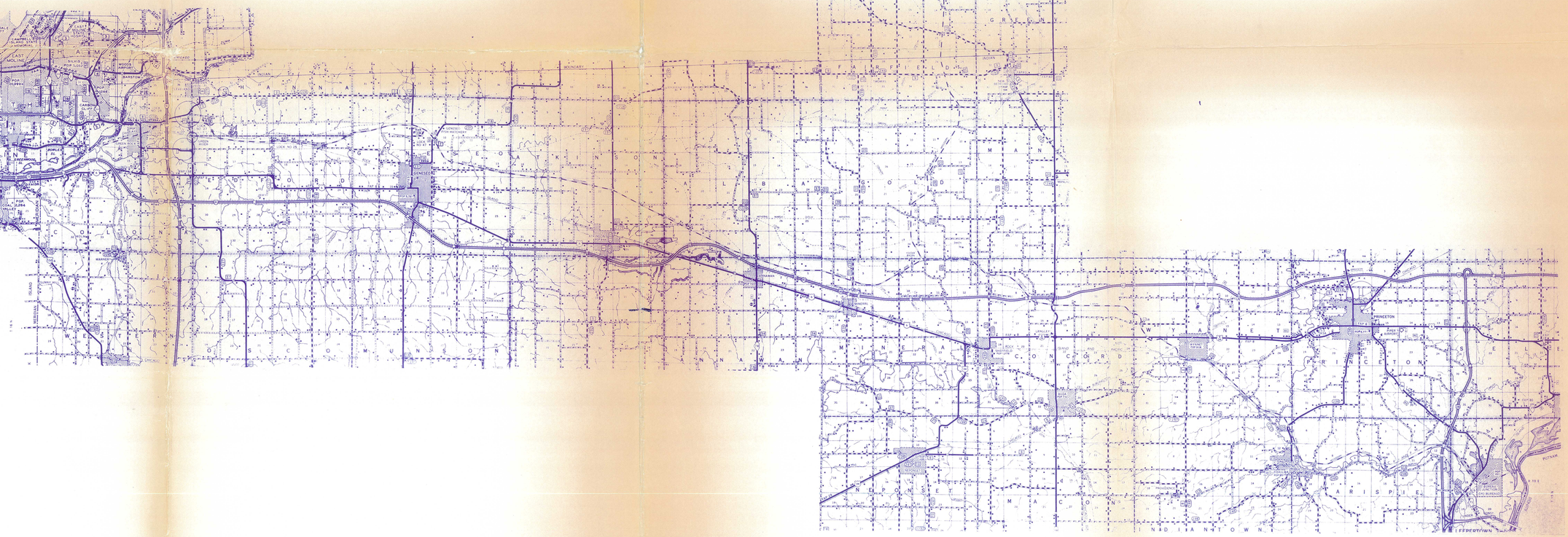
MAY 22 1978

WAR DEPARTMENT

CORPS OF ENGINEERS U. S. ARMY







HENNEPIN CANAL HISTORIC DISTRICT

Rec'd NR - 4/3/78

STATE OF ILLINOIS

DEPARTMENT OF CONSERVATION

OFFICE MEMORANDUM

To: Ann Manuel

From: Mary Yeater

Date: 9 March 1978

SUBJECT: Hennepin Canal -- National Register Application

The nomination covers the dam across the Rock River at Rock Falls, the entire feeder canal, the mainline between Lock 2 and Lock 29 where the canal joins the Rock River just west of Colona.

The area of the mainline between the Illinois River and Lock 2 was not included because Lock 1 is underwater. It was submerged when the Illinois River was improved over 50 years ago. For the 8 miles between Colona and Milan (where the mainline flows in the Rock River channel) you can't tell canal from river. It just looks like river. The area from Milan west to the Mississippi -- a little over 4 miles in which there are one steel dam, three locks, one historically significant highway bridge, one original railroad bridge and the old Milan boatyards -- was excluded because of management problems. I am asking Don Siweck, as Site Superintendent, to explain that decision since it is really his ballywick not mine.

The only right-of-way not nominated surrounds the Milan to Mississippi section of the canal and the Illinois to Lock 2 section. There is no right-of-way along the Rock River section. I separated acres of water from acres of land, maybe that accounts for the question about acerage.

I intended the bridges, their approaches and all attendent features to be nominated. A new bridge statement is on its way to Ted.

Enclosed is the 1934 Corps map I mentioned. Maybe you could get something that woudl be more what you need from Don Siweck, or Dick Lutz in Site Planning or Don Kochevar in Engineering. They all use and have developed various types of sheet maps of the whole canal -- many of which are much more detailed than this.

Mary

enclosures: (2)
cc: Campbell
Siweck
Schaefer
file (2)

Illinois Department of Conservation
life and land together

office memorandum

to: Ann Manuel

from: Don Siweck

date: March 16, 1978

subject: Hennepin Canal - National Register Nomination

As per Mary Yeater's memo of March 9, 1978, I have been requested to respond to the question of "why we didn't nominate the entire canal?"

In reviewing the areas for nomination, the area west from Lock 29 was excluded because of the following reasons:

1. Approximately 7 miles of canal is within the Rock River and we do not have definite legal boundries. The Corps could use and claim a navigable waterway but what are our restrictions? What useful purpose could we achieve? There are no structures in this section of river.
2. In order to have water west from Lock 30 flash boards would have to be installed on the steel dam at Milan These flash boards would have to be maintained, also a lot of debris and silt would have to be removed upstream from Lock 30
3. Presently we are negotiating with various governmental agencies for this section to be implemented into a flood control project.
4. Several areas have been disturbed with a railroad bridge being removed and replaced with a culvert. Another culvert was place at the Route 199 canal crossing. These two culverts disrupt any type of trail activity.
5. Questions concerning our legal right-of-way boundries.

These were the prime reasons for our excluding this portion from the nomination. If we can be of further assistance please advise.

DRS/jd

cc: Schaefer
Campbell
Yeater
File

ENTRIES IN THE NATIONAL REGISTER

STATE ILLINOIS

Date Entered MAY 22 1978

Name	Location
Roy, John, Site	Adams County
Christian Hill Historic District	Alton Madison County
Hennepin Canal Historic District	Hennepin vicinity Bureau, Henry and Whiteside Counties

Also Notified

Honorable Adlai E. Stevenson
Honorable Charles H. Percy
Honorable Paul Findley
Honorable Robert H. Michel
Honorable Tom Railsback

State Historic Preservation Officer
Mr. David Kenney
Director, Department of Conservation
602 State Office Building
400 South Spring Street
Springfield, Illinois 62706

NR Mott/bjr 5/31/78

Illinois Department of Conservation
life and land together

605 STATE OFFICE BUILDING • 400 SOUTH SPRING STREET • SPRINGFIELD 62706
CHICAGO OFFICE – ROOM 100, 160 NO. LASALLE 60601
David Kenney, Director • James C. Helfrich, Assistant Director

March 29, 1978

Mr. Bruce Mac Dougal
National Register of Historic Places
Office of Archaeology and Historic
Preservation
Heritage Conservation and Recreation
Service
Washington, D.C. 20240

Dear Bruce:

Please find enclosed the information you requested concerning the Hennepin Canal Historic District in Illinois.

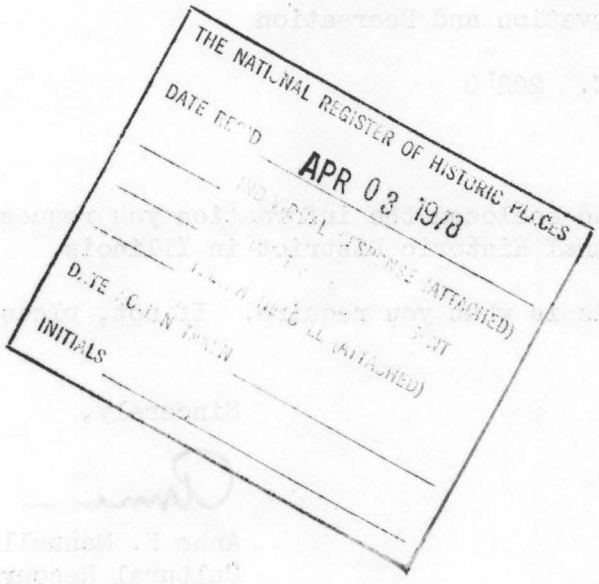
I hope this is what you require. If not, please do not hesitate to contact me.

Sincerely,

Anne E. Manuell
Cultural Resources Assistant

AEM/jl

Enclosures


THE NATIONAL REGISTER OF HISTORIC PLACES
DATE RECD
APR 03 1978
INITIALS

PH0507121

NATIONAL REGISTER DATA SHEET

(1) NAME as it appears on federal register: Hennepin Canal HistoricDistrict

(2) OTHER NAMES: Illinois and Mississippi Canal (1889-1970)

(3) date of entry: MAY 22 1978

(4) county code: 11, 73, 195

(5) LOCATION street & number: Hennepin vic. W to Moline then N to (over)

city / town: Hennepin

vicinity of

state: IL

county: Bureau, Henry, & Whiteside

(6) NPS REGION: MW

(7) OWNER ☐PRIVATE ☒STATE ☐MUNICIPAL ☐COUNTY ☐MULTIPLE ☐FEDERAL (agency name)

(8) ADMINISTRATOR:

(9) EXISTING SURVEYS ☐HABS ☐HAER ☐NHL

(10) FUNDED? ☐YES ☐NO

(11) CONGRESS. DISTRICT: 18th &

(12) SOURCE of NOMINATION ☒STATE ☐FEDERAL

if state who prepared form?

☐LOCAL ☐PRIVATE ORGANIZATION

(13) WITHIN NATIONAL REGISTER HISTORIC DISTRICT? ☐YES, NAME ☐NO

(14) WITHIN NATIONAL HISTORIC LANDMARK? ☐YES, NAME ☐NO

(15) ACREAGE

(16) CONDITION
☐excellent ☐good ☐fair ☐deteriorated ☐ruins ☐unexposed ☐unexcavated ☐altered ☐unaltered ☐reconstructed ☐excavated ☐original site ☐moved ☐unknown

(17) features:
INTERIOR: ☐SUBSTANTIALLY INTACT-1 ☐NOT INTACT-0 ☐UNKNOWN-4 ☐NOT APPLICABLE-7
EXTERIOR: ☐SUBSTANTIALLY INTACT-2 ☐NOT INTACT-0 ☐UNKNOWN-5 ☐NOT APPLICABLE-8
ENVIRONS: ☐SUBSTANTIALLY INTACT-3 ☐NOT INTACT-0 ☐UNKNOWN-6 ☐NOT APPLICABLE-9

(18) ACCESS ☐YES-Restricted ☐YES-Unrestricted ☐No Access ☐Unknown

(19) ADAPTIVE USE ☐YES ☐NO

(20) SAVED? ☐YES

IS PROPERTY A HISTORIC DISTRICT? ☐yes ☐no

(21) AREAS OF SIGNIFICANCE:
☐ARCHEOLOGY-prehistoric-2 ☐ARCHEOLOGY-historic-1 ☐AGRICULTURE-3 ☐ARCHITECTURE-4 ☐ART-5
☐COMMERCE-6 ☐COMMUNICATIONS-7 ☐CONSERVATION-8 ☐ECONOMICS-9 ☐EDUCATION-10
☐ENGINEERING-11 ☐ENTERTAINMENT-26 ☐EXPLORATION-12 ☐HEALTH-27 ☐INDUSTRY-13 ☐INVENTION-14
☐LANDSCAPE ARCH.-15 ☐LAW-16 ☐LITERATURE-17 ☐MILITARY-18 ☐MUSIC-19 ☐PHILOSOPHY-20
☐POLITICS/GOVT.-21 ☐RELIGION-22 ☐SCIENCE-23 ☐SOCIAL/HUMANITARIAN-24 ☐SOCIAL/CULTURAL-30 ☐TRANSPORTATION-25
☐RECREATION-28 ☐SETTLEMENT-29 ☐URBAN PLANNING-31 ☐OTHER (SPECIFY)

(22) CLAIMS: explain
'first' ☐
'oldest' ☐
'only' ☐

(23) functions
WHEN HISTORICALLY SIGNIFICANT:
CURRENTLY:

(24) dates of initial construction:
major alterations:
historic events:

(25) ETHNIC GROUP ASSOCIATION

(26) architectural style(s):

(27) architect:

(28) master builder:

(29) engineer:

(30) landscape architect / garden designer:

(31) interior decorator:

(32) artist:

(33) artisan:

(34) builder/contractor:

(35) NAMES give role & date
PERSONAL:
EVENTS:
INSTITUTIONAL:

(36) NATIONAL REGISTER WRITE-UP

reviewers initials_____ date_____ IF ADDITIONAL SPACE NEEDED, NUMBER & PUT ON REVERSE

5. Rock Falls vicinity

11. 19th

Public Notice

US Army Corps of Engineers
Rock Island District

Applicant: City of Rock Falls

Date: December 21, 1987
Expires: January 10, 1988

Public Notice No: CENCR-159800

Section: 10/404

Joint Public Notice
US Army Corps of Engineers
Illinois Environmental Protection Agency
Illinois Department of Transportation/Division of Water Resources

1. General Information.

a. Applicant. City of Rock Falls, 603 West 10th Street, Rock Falls, Illinois 61071.

b. Project Location. The project is located at the mouth of the Hennepin Feeder Canal in Section 22, Township 21 North, Range 7 East, in Rock Falls, Whiteside County, Illinois.

c. Project Description. The applicant proposes to construct a concrete boat ramp, two floating boat docks and a buoyed safety cable.

(1) The double lane boat ramp will be 29.5 feet wide and be about 90 feet long. The ramp will require placing approximately 200 cubic yards of rock riprap and 2000 cubic yards of coarse aggregate. There will also be 2000 cubic yards of earthen material excavated and disposed of in an upland non wetland site.

(2) The two floating boat docks will be approximately 20-foot by 4-foot and connected together. The docks will be floated using styrofoam and attached to shore.

(3) The buoyed safety cable will be used to protect boaters from the gates on the upper dam of the Rock River. The cable will be attached to shore on one side and to a pier on the other side.

d. Project Plans. The applicant's plans have been reproduced on the attached sheet(s).

2. Agency Review and Where to Reply.

a. Department of the Army, Corps of Engineers. The Department of the Army application is being processed under the provisions of Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344). Comments concerning the Corps permit should be addressed to the District Engineer, US Army Corps of Engineers, Rock Island District, Clock Tower Building - Post Office Box 2004, Rock Island, Illinois 61204-2004. Mr. Leo Foley (309/788-6361, extension 379) may be contacted for additional information.

b. State of Illinois

(1) The project plans have been submitted to the Illinois Environmental Protection Agency (IEPA) for state certification of the proposed work in accordance with Section 401 of the Clean Water Act. The certification, if issued, will express the Agency's opinion that the proposed activities will not violate applicable water quality standards. Written comments concerning possible impacts to waters of Illinois should be addressed to: Illinois Environmental Protection Agency, Division of Water Pollution Control, Permit Section, 2200 Churchill Road, Springfield, Illinois 62706, with copy provided to the Corps of Engineers (see paragraph 2.a. of this public notice for address).

(2) The Illinois Department of Transportation, Division of Water Resources (IDOT/DWR), application is being processed pursuant to an Act in Relation to the Regulation of the Rivers, Lakes and Streams of the State of Illinois (I.R.S., Chapter 19, par. 52 et seq.). Comments concerning the IDOT/DWR permit should be addressed to the Illinois Department of Transportation, Division of Water Resources, 201 West Center Court, Schaumburg, Illinois 60196, with a copy provided to the Corps of Engineers, (see paragraph 2.a. of this public notice for address). Mr. Gary Jereb (312/705-4341) may be contacted for additional information.

3. Historical/Archaeological. The entire Illinois and Mississippi Canal (also called Hennepin Canal) is listed in the National Register of Historic Places as an historic district (22 May 1978). All permit requests for work that will affect this property will be coordinated by the Rock Island District with the Illinois State Historic Preservation Officer and the Advisory Council on Historic Preservation, Washington, DC. No action will be taken in the historic district boundaries until the coordination with the above named agencies has been completed. The canal is the property of the State of Illinois.

4. Endangered Species. Preliminary review by District staff indicates that the proposed activity is not likely to jeopardize the continued existence of any species or the critical habitat of any fish and wildlife, or plant which is designated as endangered or threatened pursuant to the Endangered Species Act of 1973 as amended (16 U.S.C. 1531 et seq.). Therefore, no formal consultation request has been made to the United States Department of the Interior, Fish and Wildlife Service.

5. Dredge/Fill Material Guidelines. The evaluation of the impact of the proposed activity on the public interest will also include application of the guidelines promulgated by the Administrator of the United States Environmental Protection Agency under authority of Section 404(b) of the Clean Water Act (40 CFR Part 230).

6. Public Interest Review. The decision whether to issue the Corps permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

7. Who Should Reply. Any interested parties, particularly navigation interests, Federal and state agencies for the protection of fish and wildlife, and the officials of any state, town, or local association whose interests may be affected by the proposed work, are invited to submit to this office within 21 days from the date of this notice written statements of facts, arguments, or objections thereto. These statements should bear upon the adequacy of plans and suitability of locations and should, if appropriate, suggest any changes considered desirable.

8. Public Hearing Requests. Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. A request may be denied if substantive reasons for holding a hearing are not provided.

FOR THE COMMANDER:

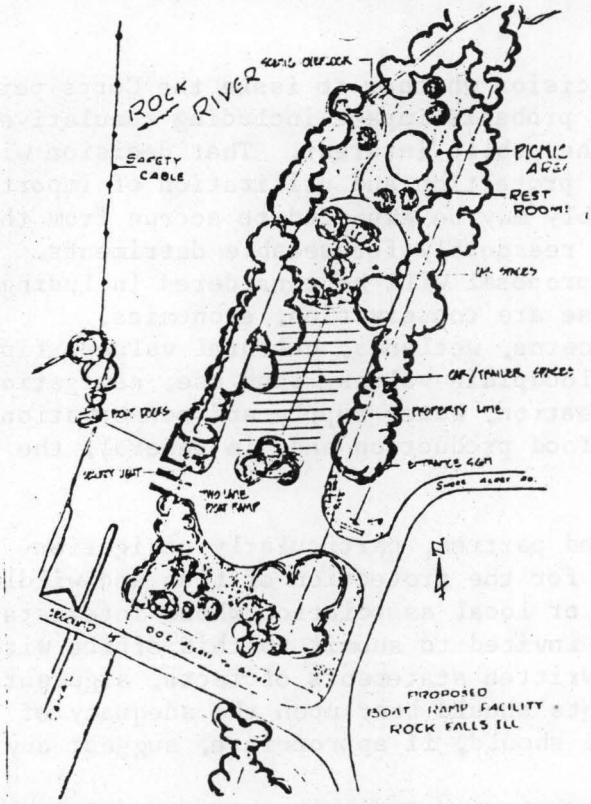
L J Vanderhorn P.E.

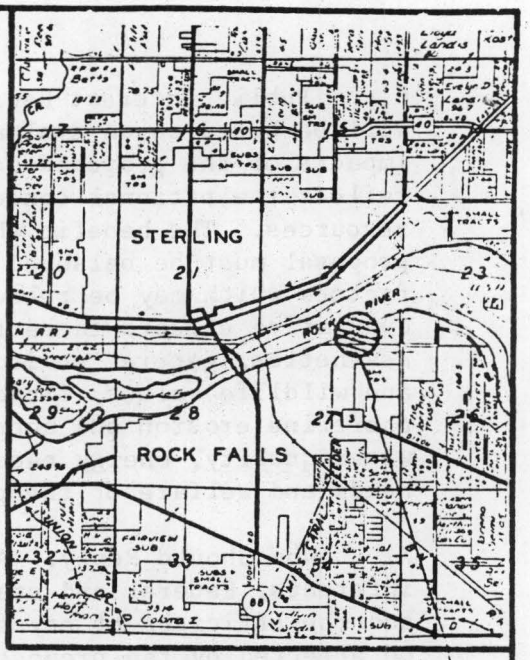
Attach
Plan

JAMES H. BLANCHAR, P.E.
Acting Chief, Operations Division

NOTICE TO POSTMASTERS:

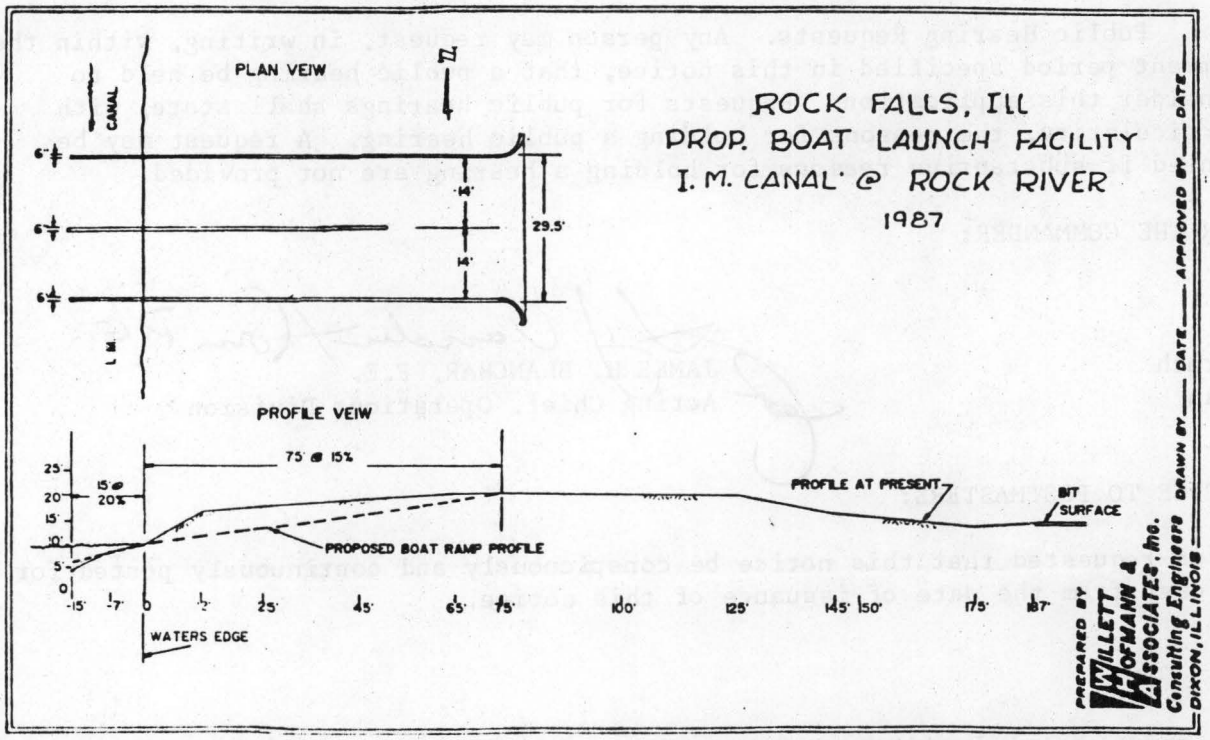
It is requested that this notice be conspicuously and continuously posted for 21 days from the date of issuance of this notice.





VICINITY MAP

PROJ. LOCATION



ROCK FALLS, ILL
PROP. BOAT LAUNCH FACILITY
I. M. CANAL @ ROCK RIVER
1987

DRAWN BY ____ DATE ____ APPROVED BY ____ DATE ____

PREPARED BY WILLETT HOFMANN & ASSOCIATES, Inc. Consulting Engineers DIXON, ILLINOIS

LIST OF ADJACENT PROPERTY OWNERS

NO.	NAME	ADDRESS
1.	City of Rock Falls, IL.	603 W. 10th St. Rock Falls, IL 61071
2.	John Lawrence	1906 Avenue E Sterling, IL 61081
3.	Ill. D.O.C.	2612 Locust St. Sterling, IL 61081
4.		

PROJECT DESCRIPTION:
DOUBLE LANE
BOAT RAMP

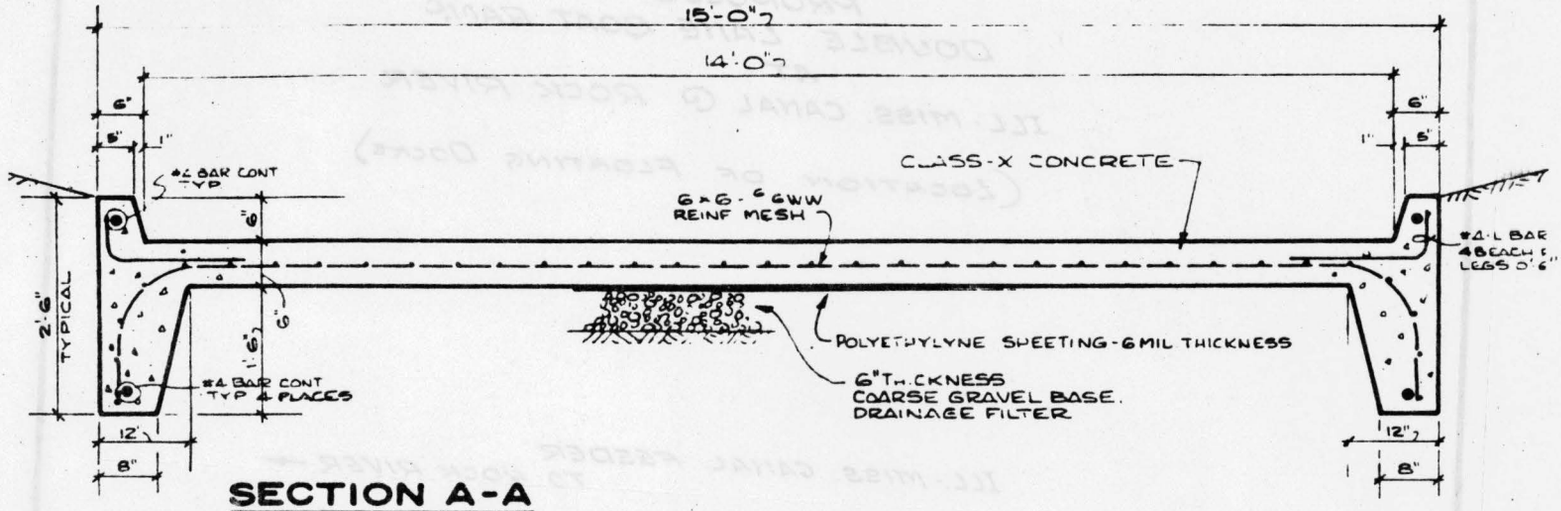
LOCATION:
COLOMA TWN.
PARK DISTRICT
ROCKFALLS, ILL.

SHEET 1 OF 3

NCR FORM 427
01 JUNE 81

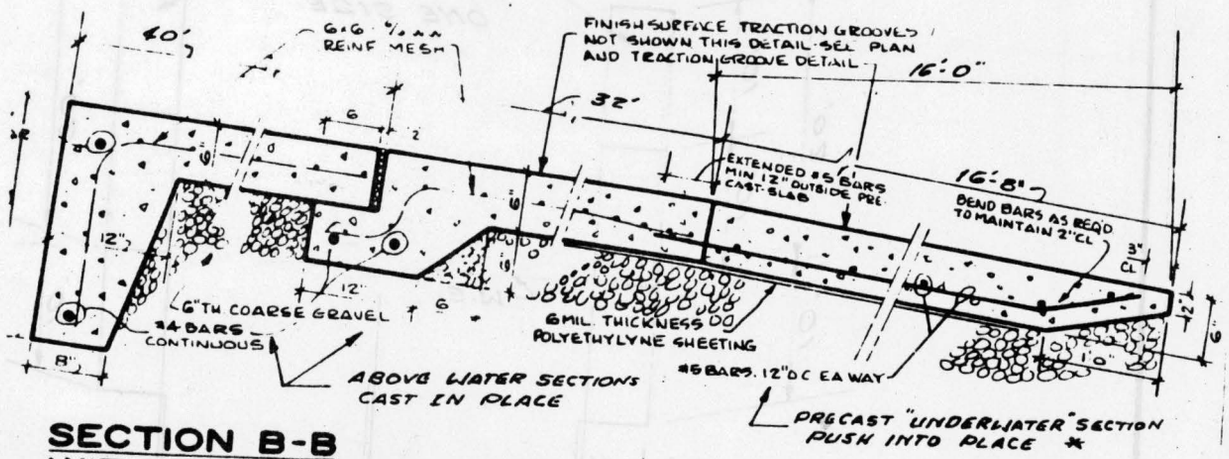
CORPS OF ENGINEERS COPY

159800



SECTION A-A
RAMP ELEVATION DETAIL

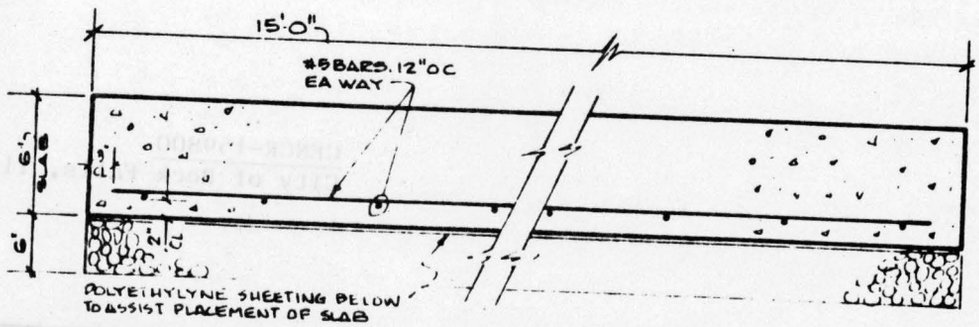
SCALE 3/4" = -0"



SECTION B-B
WITH PRE-CAST UNDERWATER CONC. SLAB

SCALE 1" = 1'-0"

* PRE-CAST SLAB TO BE CONSTRUCTED ON GROUND IMMEDIATELY ABOVE WATERLINE. POLYETHYLYNE SHEETING TO BE PLACED UNDER SLAB POUR TO ASSIST PUSHING SLAB INTO PLACE



TYPICAL SECTION-PRE-CAST CONC. SLAB

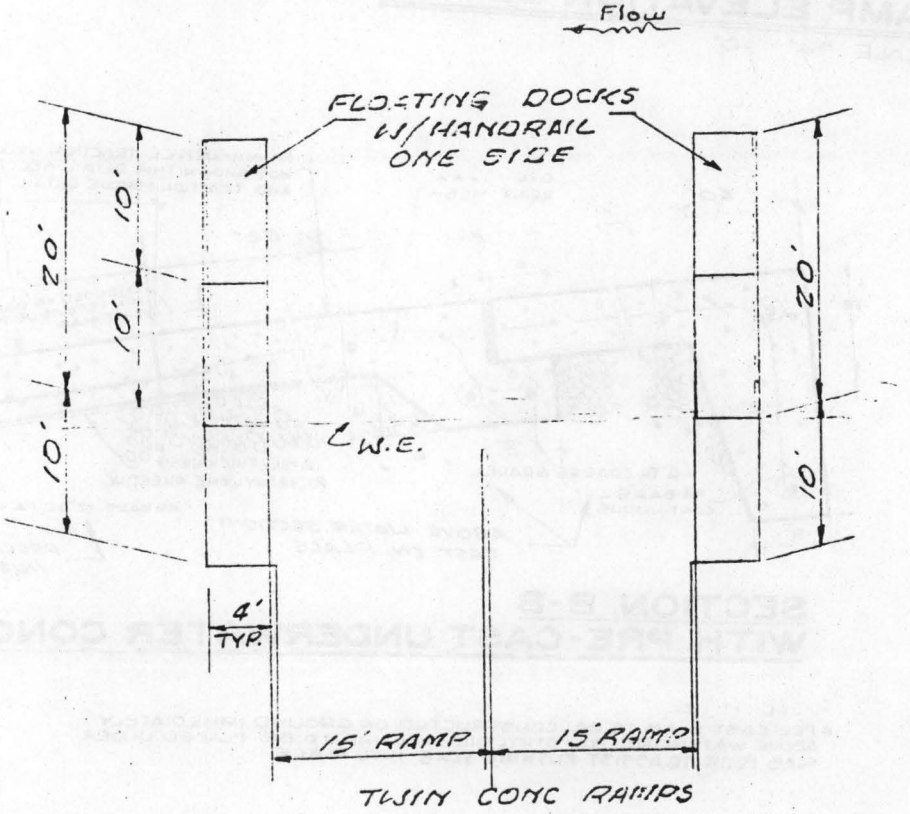
NOT TO SCALE.

159800

ROCK FALLS, ILL.
PROPOSED
DOUBLE LANE BOAT RAMP
AT
ILL-MISS. CANAL @ ROCK RIVER

(LOCATION OF FLOATING DOCKS)

ILL.-MISS. CANAL FEEDER TO ROCK RIVER →



CENCR-159800
City of Rock Falls, Illinois

```
  4)PRINT "More polygons in more than one zone"

More polygons in more than one zone

$LINE REFNUM

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    2 66000036
    3 69000270
    4 71000971
    5 72000757
    6 73000939
    7 74000772
    8 74002072
    9 78000425
   10 78003433
   11 80004426
   12 80004445
   13 80004446
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25 lines printed.
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